

Turgay Ayer, Ph.D.
Virginia C. and Joseph C. Mello Chair & Professor
ISyE
January 2024

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I. EARNED DEGREES

| | | |
|-------|---|---------|
| Ph.D. | Industrial and Systems Engineering, Minor in Mathematics, University of Wisconsin-Madison | 2011 |
| M.Sc. | Master of Science in Analytics Georgia Institute of Technology Completed Coursework: Data Analytics in Business, Machine Learning, Computing for Data Analytics, Computational Statistics, Econometrics, Applied Analytics Practicum | ongoing |
| M.Sc. | Industrial and Systems Engineering, University of Wisconsin-Madison | 2008 |
| B.S. | Manufacturing Systems Engineering, Minor in Mathematics Sabanci University | 2006 |

II. EMPLOYMENT HISTORY

A. Academic Appointments

Georgia Institute of Technology, Atlanta, GA

| | |
|---|--------------------------|
| Virginia C. and Joseph C. Mello Chaired Professor H. Milton Stewart School of Industrial and Systems Engineering | August 2022— |
| George Family Foundation Early Career Professor H. Milton Stewart School of Industrial and Systems Engineering | April 2016— January 2022 |
| Research Director, Business Intelligence and Healthcare Analytics Center for Health and Humanitarian Systems | April 2018— |
| Core Member, Healthcare Analytics Initiative | April 2019— |
| Associate Professor H. Milton Stewart School of Industrial and Systems Engineering | August 2018— |
| Assistant Professor H. Milton Stewart School of Industrial and Systems Engineering | 2011— 2018 |

Emory University Medical School, Atlanta, GA

| | |
|---|--------------|
| Associate Professor (by courtesy) Winship Cancer Institute | August 2016— |
|---|--------------|

B. Non-Academic Appointments

Centers for Disease Control and Prevention (CDC), Atlanta, GA

Senior Science Advisor (on loan to the CDC through an IPA)

Nov 2020—

III. HONORS AND AWARDS

(Awards given to mentored students for joint work marked with a *)

A. International or National Awards

1. 2023 National Academy of Engineering (NAE)'s US Frontiers of Engineering Laureate
 - Awarded to 100 engineers each year from across the US representing the full range of engineering fields
2. Finalist, INFORMS Pierskalla Award (Healthcare Applications Society Best Paper Competition), 2023
 - recognizes research excellence in the field of health care management science
3. IISE Outstanding Innovation in Service Systems Engineering Award, 2022
4. Rockefeller Foundation COVID-19 Modeling Accelerator Award, 2021
5. Sanjay and Panna Mehrotra Research Excellence Award, Finalist, 2020
 - recognizes a mid-career researcher for significant contributions to the practice of health applications through operations research (OR) and management science (MS) modeling and methodologies.
6. First prize, MSOM Responsible Research in Operations Management, 2019
7. Finalist, MSOM Student Paper Competition, 2019*
8. Honorable Mention, 2019 INFORMS Dantzig Dissertation Award, 2019*
9. Finalist, INFORMS Public Sector OR Best Paper Award, 2018
10. First Prize, INFORMS eBusiness Section Best Paper Competition, 2018
11. Inducted as the Franz Edelman Laureate, 2017¹
 - “the world’s most prestigious award for achievement in the practice of analytics and operations research” (informs.org)
 - INFORMS Franz Edelman Laureates are “recognized for their significant contribution to work that is selected as representative of the best applications of analytical decision making in the world”
12. First Prize, MSOM Practice-Based Research Competition, 2017

¹ a video synopsis produced by the American Red Cross highlighting the realized impact can be found here:
<https://vimeo.com/206581123/72c76ad3dd>

13. First prize winner, MSOM Student Paper Competition, 2017*
14. First Prize, POMS College of Sustainable Operations Best Student Paper Competition, 2017*
15. Finalist, INFORMS Pierskalla Award (Healthcare Applications Society Best Paper Competition), 2016
 - recognizes research excellence in the field of health care management science
16. First Prize, INFORMS Decision Analysis Society Student Paper Competition, 2016*
17. Honorable Mention, INFORMS Public Sector OR Paper Competition, 2016
18. NSF CAREER Award, 2015
19. First Prize, INFORMS Doing Good with Good OR Paper Competition, 2015*
 - recognizes outstanding papers in the field of operations research and the management sciences that have a significant societal impact
20. Finalist, INFORMS Nicholson Student Paper Competition, 2015*
21. South Big Data Hub Program to Empower Partnerships with Industry (PEPI) Fellow, 2015
 - Financially supports early career faculty members and pairs each fellow with industry partners. Ayer is hosted by the UnitedHealthcare Group.
22. INFORMS Seth Bonder Foundation Research Award, 2014, 2012
 - awarded to the most promising young researchers in healthcare area
23. INFORMS Bonder Scholarship for Applied Operations Research in Health Services, 2010
 - Selected annually; provides financial support to one Ph.D. student with the greatest potential for making a significant contribution to the field of applied Operations Research in healthcare
24. First Prize, 2011 INFORMS Doing Good with Good OR Competition
25. Second Prize, 2011 INFORMS MSOM Society Student Paper Competition
26. Finalist, 2011 INFORMS Decision Analysis Society Student Paper Competition
27. First Prize, Society for Medical Decision Making (SMDM) Lee B. Lusted Award, 2009
 - recognizes outstanding presentations of research at the Annual Meeting of the SMDM
28. First Prize, INFORMS Interactive Session Award, 2009
29. Outstanding Presentation Award in the Informatics Session of 2008 Annual Meeting of Radiological Society of North America (invited for publication in RadioGraphics)

- 30. Paul Carbone Prize for Best Poster in Cancer Control during 2nd Annual UW Carbone Comprehensive Cancer Center (UWCCC) Research Retreat in 2008
- 31. Selected for the 2010 INFORMS Doctoral Colloquium

B. Institute or School Awards

- George Family Foundation Professorship, 2016-present
- Thank a teacher Certificate, Georgia Tech, Spring 2012, Spring 2013, Fall 2019

IV. RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES

(* indicates work conducted at Georgia Tech)

(Bolded co-authors are advisees [i.e., post-docs, graduate or undergraduate students] under Dr. Ayer’s supervision)

(*M.D.* denotes a medical doctor collaborator)

A. PUBLISHED BOOKS, BOOK CHAPTERS, AND EDITED VOLUMES

A1. Books

No data.

A2. Refereed Book Chapters

1. *T. Ayer, C. C. White, **C. Zhang** (2023), “*Healthcare Inventory Management*”, in *Research Handbook in Inventory Management*, edited by Jing-Sheng Jeannette Song and R. David Thomas, Edward Elgar Publishing (invited and refereed).
2. *T. Ayer, **Q. Chen** (2018), “*Personalized Medicine*”, *Handbook of Healthcare Analytics: Theoretical Minimum for Conducting 21st Century Research on Healthcare Operations*, edited by Sridhar Tayur and Tinglong Dai, John Wiley & Sons (invited and refereed).
3. *T. Ayer, P. Keskinocak, and J. Swann (2014), “*OR/MS Research in Public Health,*” in *Bridging Data and Decisions* (pp. 216-239), edited by A. Newman and C. Smith (invited and refereed).
4. O. Alagoz, T. Ayer, F.S. Erenay (2011), “*Operations Research Models in Cancer Screening,*” in *Encyclopedia of Operations Research and Management Science*, edited by James J. Cochran, John Wiley & Sons. Published online: 14 January 2011, DOI: 10.1002/9780470400531.eorms0597 (invited and refereed).

A3. Edited Volumes

No data.

B. REFEREED PUBLICATIONS AND SUBMITTED ARTICLES

(* indicates work conducted at Georgia Tech)

(Bolded co-authors are advisees [i.e., post-docs, graduate or undergraduate students] under Dr. Ayer’s supervision)

(*M.D.* denotes a medical doctor collaborator)

B1. Published and Accepted Journal Articles

1. ***C. Zhang**, T. Ayer, C. C. White (2023) “Truncated Balancing Policy for Perishable Inventory Management: Combating High Shortage Penalties”, *MSOM*, 25 (6).
 - Finalist, INFORMS Nicholson Student Paper Competition
2. ***J. Vlachy**, T. Ayer, M. Ayvaci, S. Raghunathan (2023), “The Business of Healthcare: Physician Integration in Bundled Payments”, *MSOM*, 25 (3), <https://doi.org/10.1287/msom.2023.1187>.
 - Selected for presentation as one of the four MSOM Healthcare Special Interest Group presentations, from 80+ submissions.
3. ***C. Zhang**, T. Ayer, C. C. White (2023) “Inventory Sharing for Perishable Products: Application to Platelets Inventory Management in Hospital Blood Banks”, *Operations Research*, 71 (5), doi.org/10.1287/opre.2022.2410
4. * T Ayer (2023), “Improving Blood Collection Operations Diagram at the American Red Cross”, *The Bridge* (A National Academy of Engineering Journal), 53 (4).
5. * A Arifkhanova, **A Elhabr**, C Murray, J Khushalani, A Neri, J Kaminski, RW Puddy, T Ayer (2023), “Telemental Health Utilization in Commercial Health Insurance Plans in the United States From 2010 Through 2019”, *J Clin Psychiatry*, 85(1).
6. ***JA McCandlish**, T. Ayer, J Chhatwal (2023), “Cost-Effectiveness and Value-of-Information Analysis Using Machine Learning–Based Metamodeling: A Case of Hepatitis C Treatment”, *Medical Decision Making* 43 (1), 68-77.
7. ***J Julien**, T Ayer, EB Tapper, J Chhatwal (2023), “The Rising Costs of Alcohol-Associated Liver Disease in the United States, 1572-0241; DOI: 10.14309/ajg.0000000000002405
8. *T Castellano, K Moore, J Ting, C Washington, Y Yildiz, A Surinach, K Sonawane, J Chhatwal, T Ayer (2023), “Cervical cancer geographical burden analyzer: An interactive, open-access tool for understanding geographical disease burden in patients with recurrent or metastatic cervical cancer”, *Gynecologic Oncology*, 169, 113-117.
9. *VK Lopez, EY Cramer, R Pagano, JM Drake, EB O’Dea, M Adee, T Ayer et al. (2023), “Challenges of COVID-19 Case Forecasting in the US, 2020-2021”, *PLOS Computational Biology* (accepted for publication subject to minor revisions)
10. *AH Gaglioti, C Li, PT Baltrus, **Z She**, MD Douglas, MA Moore, A Rao, LC Immergluck, T Ayer, A Bazemore, G Rust, DH Mack (2023), “Interpersonal Primary Care Continuity for Chronic Conditions Is Associated with Fewer Hospitalizations and Emergency Department Visits

Among Medicaid Enrollees”, *The Journal of the American Board of Family Medicine*, 36 (2) 303-312; DOI: <https://doi.org/10.3122/jabfm.2022.220015R1>

11. ***She**, T. Ayer, D. Montenara (2022) “Can Big Data Cure Risk Selection in Healthcare Capitation Programs?”, *MSOM*, 24 (6), 2797-3306, doi.org/10.1287/msom.2022.1127
 - Finalist, MSOM Student Paper Competition
 - Finalist, INFORMS Public Sector OR Best paper award

12. ***A. Bonifonte**, T. Ayer, B. Haaland, P. Wilson (M.D.) (2022), “An Analytics Approach to Guide Randomized Controlled Trial Design for Hypertension Management”, *Management Science* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], doi.org/10.1287/mnsc.2021.4226
 - i. Winner, IISE Health Care Student Paper competition
13. *BP Linas (M.D.), J Xiao, OO Dalgic, PP Mueller, M Adee, A Aaron, T Ayer, J Chhatwal (2022), “Projecting COVID-19 Mortality as States Relax Nonpharmacologic Interventions”, *JAMA Health Forum*, 3(4):e220760. [doi:10.1001/jamahealthforum.2022.0760](https://doi.org/10.1001/jamahealthforum.2022.0760).
14. *P Mueller, **Q Chen**, T. Ayer et al. (2022), “Duration and Cost-effectiveness of Hepatocellular Carcinoma Surveillance in Hepatitis C Patients After Viral Eradication”, *Journal of Hepatology*, 77(1), 55-62.
15. *PP Mueller, Q Chen, T Ayer, G Nemutlu, ED Bethea (M.D.), MLB Peters (M.D.), B Lee (M.D.), NZ Janjua, F Kanwal, J Chhatwal (2022), “Duration and Cost-effectiveness of Hepatocellular Carcinoma Surveillance in Hepatitis C Patients After Viral Eradication” *Journal of Hepatology*, 77(1), 55-62.
16. *EY Cramer et al. (2022), “Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the United States”, *Proceedings of the National Academy of Sciences*, 119 (15), e2113561119.
17. ***J. Julien**, T. Ayer, EB Tapper, C Barbosa, W Dowd, J Chhatwal (2022), “Effect of Increased Alcohol Consumption During COVID-19 Pandemic on Alcohol-related Liver Disease: A Modelling Study”, accepted for publication in *Hepatology* [IF: 14.079, highest ranking hepatology journal].
18. ***A Elhabr, S Merdan**, T Ayer, A Prater, T Hanna, M Horny, R Duszak, D Hughes (2022), “Increasing Utilization of Emergency Department Neuroimaging from 2007 to 2017”, *Gastro*
19. *Roentology*, 218 (1), 165-173, [10.2214/AJR.21.25864](https://doi.org/10.2214/AJR.21.25864).
20. *AG Singal, B Haaland, ND Parikh, B Ozbay, C Kirshner, S Chakankar, K Porter, J Chhatwal, Turgay Ayer (2022), “Comparison of a Novel Multitarget Blood Test to

Ultrasound And Alpha-Fetoprotein for Hepatocellular Carcinoma Surveillance: Results of A Network Meta-Analysis”, *Hepatology Communications*, doi.org/10.1002/hep4.2045

21. *K Sonawane, T Castellano, C Washington, J Ting, A Surinach, C Kirshner, J Chatwal, KN Moore, T Ayer (2022), “Factors associated with receipt of second-line recurrent or metastatic cervical cancer treatment in the United States: A retrospective administrative claims analysis.”, *Gynecologic Oncology Reports*, 44, 101-121, doi.org/10.1016/j.gore.2022.101121
22. *J Chhatwal et al. (2022), “When Can We Lift Non-Pharmaceutical Interventions with the Availability of COVID-19 Vaccine in the United States?”, *Health Services Research*, doi.org/10.1111/1475-6773.13832
23. *Y. Kim, M. Ayvaci, S. Raghunathan, T. Ayer (2022), “When IT Creates Legal Vulnerability: Not Just Overutilization but Underprovisioning of Health Care Could be a Consequence”, accepted for publication in *MIS Quarterly* [#1 ranking journal in Management Information Systems area, in Financial Times (FT) 50 list].
 - i. Winner, INFORMS eBusiness Section Best Paper Competition.
24. *A Toumi, H. Zhao, J. Chhatwal, BP Linas, T. Ayer (2021), “The Effect of NFL and NCAA Football Games on the Spread of COVID-19 in the United States: An Empirical Analysis”, accepted for publication in *JAMA Network Open*.
25. *S Merdan, K Subramanian, T Ayer, JV Weyenbergh (M.D.), A Chang (M.D.), JL Koff (M.D.), CR Flowers (M.D.) (2021), Gene expression profiling-based risk prediction and profiles of immune infiltration in diffuse large B-cell lymphoma, *Nature Blood Cancer Journal* 11 (1), 1-12
26. * H Jang, M Ozkaynak, T Ayer, MR Sills (M.D.), (2021), “Factors Associated with First Medication Time for Children Treated in the Emergency Department for Asthma”, *Pediatric Emergency Care* 37 (1), e42-e47.
27. *H. Jang, M. Ozkaynak, CR Amura, T. Ayer, M. Sills (M.D.) (2021), “Analysis of medication patterns for pediatric asthma patients in emergency department: Does the sequence placement of glucocorticoids administration matter?,” *Journal of Asthma*, 58 (2), 180-189.
28. *M. Adee, Y Zhuo, T Zhan, Q Chen, A Toumi, T Ayer, C Nwankwo, H Zhong, A Puenpatom, J. Chhatwal (2021), “A Tool to Inform Hepatitis C Elimination: A Case For Hepatitis C Elimination In China”, *Clinical Liver Disease*, 17 (3), 99-106.
29. *C. Zhang, A. Atasu, T. Ayer, B. Toktay (2020), "Truthful Mechanisms for Medical Surplus Products Allocation", *MSOM* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 22 (4), 735-753, <https://doi.org/10.1287/msom.2018.0770>
 - First prize winner, MSOM Responsible Research in Operations Management
 - First prize winner, MSOM Student Paper Competition
 - First prize winner, INFORMS Doing Good with Good OR Student Paper Competition
 - First prize winner, POMS College of Sustainable Operations Best Student Paper

Competition

30. ***J Julien**, T Ayer, ED Bethea (*M.D.*), EB Tapper (*M.D.*), J Chhatwal (2020), “Projected prevalence and mortality associated with alcohol-related liver disease in the USA, 2019–40: a modelling study”, *The Lancet Public Health* [Impact Factor (IF): 16.292], 5 (6), e316-e323
31. ***Q Chen**, T Ayer, MG Adee, X Wang, F Kanwal (*M.D.*), J Chhatwal (2020), Assessment of Incidence of and Surveillance Burden for Hepatocellular Carcinoma Among Patients With Hepatitis C in the Era of Direct-Acting Antiviral Agents, *JAMA Network Open*, 3 (11), e2021173-e2021173
32. ***AB Fujimoto**, T Ayer, AB Caughey (*M.D.*), P Keskinocak (2020), “A comparison of first trimester prenatal screening strategies for Down Syndrome with maternal age and preferences considerations”, *Prenatal Diagnosis*, 40 (12), 1553-1562.
33. ***Z She**, AH Gaglioti (*M.D.*), P Baltrus, C Li, M Moore, L Immergluck, A Rao, T Ayer (2020), “Primary Care Comprehensiveness and Care Coordination in Robust Specialist Networks Results in Lower Emergency Department Utilization: A Network Analysis of Medicaid Physician Networks”, *Journal of Primary Care & Community Health*, 11, 1-9.
34. *T. Ayer, **C. Zhang, C. Zeng**, C. C. White III, V. Roshan Joseph (2019) “Analysis and Improvement of Blood Collection Operations”, *MSOM* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 21 (1), 29-46.
 - [Here is a Youtube video](#) about this project, produced by the American Red Cross, highlighting the realized practical impact on their blood collection operations²
 - First prize winner, 2017 MSOM Practice-Based Research Competition
 - First prize winner, 2015 INFORMS Doing Good with Good OR Competition
 - Selected as one of the four showcase presentations by the College of Healthcare Operations (CHOM) of the Production & Operations Management Society (POMS) annual Synapse Mini-Conference, 2017
35. *T. Ayer, **C. Zhang, A. Bonifonte**, A. Spaulding (*M.D.*), J. Chhatwal (2019), “Prioritizing Hepatitis C Treatment in U.S. Prisons”, *Operations Research* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 67 (3), 853-873.
 - Finalist, INFORMS Healthcare Applications Society Best Paper Award (Pierskalla Award)
36. *T. Ayer, M. Ayvaci, Z. Karaca, **J. Vlachy** (2019) “The Impact of Health Information Exchanges on Emergency Department Length of Stay,” *Production and Operations Management (POM)* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 28 (3), 740-758.
 - Finalist, INFORMS Conference on Information Systems and Technology (CIST) Best Paper Competition, 2015
 - Finalist, Workshop on Health IT & Economics (WHITE) Best Paper Competition,

² <https://www.youtube.com/watch?v=xTBUXMhOrvU>

37. ***Q Chen**, T. Ayer, ED Bethea (*M.D.*), F Kanwal (*M.D.*), X **Wang**, M Roberts (*M.D.*) , Y Zhuo, S Fagioli (*M.D.*), J Petersen (*M.D.*), J Chhatwal, (2019), “Changes in hepatitis C burden and treatment trends in Europe during the era of direct-acting antivirals: a modelling study”, *BMJ Open*, 9 (6), 1-11.
38. * **C Caglayan**, H Terawaki (*M.D.*), T Ayer, JS Goldstein (*M.D.*), A Rai (*M.D.*), Q Chen, C Flowers (*M.D.*) (2019), “Assessing the Effectiveness of Treatment Sequences for Older High-Risk Follicular Lymphoma Patients with a Multi-state Model”, *Clinical Lymphoma Myeloma and Leukemia*, 19 (5), 300-309.
39. * **C Caglayan**, T Ayer, JS Goldstein (*M.D.*), A Rai (*M.D.*), C Flowers (*M.D.*) (2019), “A Population-Based Multi-state Model for Diffuse Large B Cell Lymphoma-Specific Mortality in Older Patients”, *Cancer*, 125 (11), 1837-1847.
40. * OO Dalgic, S Samur, AC Spaulding(*M.D.*), S Lierena(*M.D.*), C Cobo (*M.D.*), T Ayer, MS Roberts(*M.D.*), J Crespo(*M.D.*), J Chhatwal (2019), “Improved Health Outcomes from hepatitis C Treatment Scale-Up in Spain’s Prisons: A Cost-Effectiveness Study”, *Nature Scientific Reports*, 9(1), 1-11
41. *J Chhatwal, **X Wang**, **Q Chen**, T Ayer, ED Bethea (*M.D.*), F Kanwal (*M.D.*), KV Kowdley (*M.D.*), MS Roberts (*M.D.*), SC Gordon (*M.D.*) (2019), “Assessment of the Feasibility and Cost of Hepatitis C Elimination in Pakistan”, *JAMA Network Open*, 2 (5), 1-12.
42. *ED Bethea, S. Samur, F. Kanwal (*M.D.*), T. Ayer, C. Hur (*M.D.*), MS Roberts (*M.D.*), N Terrault (*M.D.*), RT Chung (*M.D.*), J. Chhatwal (2018), “Cost-effectiveness of Transplanting HCV-Infected Livers into Uninfected Recipients with Preemptive Antiviral Therapy,” *Clinical Gastroenterology and Hepatology*, 17(4), 739-747.
43. ***Q. Chen**, AD Staton (*M.D.*), T. Ayer, DA Goldstein (*M.D.*), JL Koff (*M.D.*), CR Flowers (*M.D.*) (2018), “Exploring the Potential Cost-Effectiveness of Precision Medicine Treatment Strategies for Diffuse Large B-cell Lymphoma”, *Leukemia and Lymphoma*, 59 (7), 1700-1709.
44. ***H. Jang**, M. Ozkaynak, T. Ayer, M. Sills (*M.D.*) (2018), “Factors Associated with First Medication Time for Children Treated in the Emergency Department for Asthma,” *Pediatric Emergency Care*, 37 (1), 42-47.
45. * **C. Caglayan**, H. Terawaki (*M.D.*), Q. Chen, A Rai, T. Ayer, CR. Flowers (*M.D.*) (2018) Microsimulation Modeling in Oncology, *JCO Clinical Cancer Informatics*, 2, 1-11.
46. **I. Arsik**, J. K. Frediani (*M.D.*), **D. Frezza**, **W. Chen**, T. Ayer, P. Keskinocak, Pinar et al. (2018), “Alanine Aminotransferase as a Monitoring Biomarker in Children with Nonalcoholic Fatty Liver Disease: A Secondary Analysis Using TONIC Trial Data”, *Children*, 5(6), 64-75.

47. ***J. Vlachy, M. Jo, Q. Li**, T. Ayer P. Keskinocak, J. Swann, L. Olson (*M.D.*), A. Vats(*M.D.*) (2018), “Risk factors for seizures among young children monitored with continuous electroencephalography in intensive care unit: A retrospective study,” *Frontiers in Pediatrics*, 6:303, 1-7.
48. ***Q. Chen**, T. Ayer, J. Chhatwal (2018), “Optimal M-switch Surveillance Policies for Liver Cancer in Hepatitis C-Infected Population,” *Operations Research* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 66(3), 673-696.
 - First Prize Winner, 2016 INFORMS Decision Analysis Society Student Paper Competition.
 - Honorable Mention, INFORMS Public Sector OR Paper Competition, 2016
49. *T. Ayer, **C. Zhang, C. Zeng**, C.C. White, V. Roshan Joseph, K. Lee, Z. Ozkaynak, M. Deck (2018), “American Red Cross Uses Analytics-based Methods to Improve Blood Collection Operations”, *INFORMS Journal on Applied Analytics*, 48(1), 24-34.
 - Finalist, 2017 INFORMS Franz Edelman Award, “the world’s most prestigious award for achievement in the practice of analytics and operations research” (informs.org)³
50. *M. Cevik. T. Ayer, O. Alagoz (2018), “Analysis of Mammography Screening Policies under Resource Constraints,” *Production and Operations Management (POM)* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 27(5), 949-972.
51. *J. Chhatwal, S Samur, E. Bethea (*M.D.*), T. Ayer, F. Kanwal (*M.D.*), C. Hur (*M.D.*), MS Roberts (*M.D.*), N Terrault (*M.D.*), RT Chung (*M.D.*) (2018), “Transplanting HCV-positive livers into HCV-negative patients with preemptive antiviral treatment: A modeling study,” *Hepatology* [IF: 14.079, highest ranking hepatology journal], 67(6), 2085-2095.
52. *J Chhatwal, **Q Chen**, T Ayer, ED Bethea (*M.D.*), F Kanwal (*M.D.*), KV Kowdley (*M.D.*), **X Wang**, MS Roberts (*M.D.*), SC Gordon (*M.D.*) (2018), “Hepatitis C virus re-treatment in the era of direct-acting antivirals: projections in the USA”, *Alimentary pharmacology & therapeutics* [IF: 7.51], 47(7), 1023-1031.
53. ***J. Yan**, T. Ayer, P. Keskinocak, A. Caughey (*M.D.*) (2017), “Age-based Differences in the Predictive Accuracy of a One-Size-Fits-All Risk-Cutoff Value in Prenatal Integrated Screening for Down Syndrome,” *Prenatal Diagnosis*, 37(9), 894-898.
 - First prize winner, 2017 the Society for Health Systems graduate student paper competition
54. ***S. Samur**, B Kues, T Ayer , MS Roberts (*M.D.*), F Kanwal (*M.D.*), C Hur (*M.D.*), DMS Donnell (*M.D.*), R Chung (*M.D.*), J. Chhatwal (2017), “Cost-Effectiveness of Pre versus Post Liver Transplant Hepatitis C Treatment with Direct-Acting Antivirals”, *Clinical Gastroenterology and Hepatology* [IF: 8.54], 16(1), 115-122.

³ See [www.informs.org/About-INFORMS/News-Room/Press-Releases/2017-INFORMS Franz-Edelman-Award-finalists-selected-from-leading-analytics-teams-around-the-world](http://www.informs.org/About-INFORMS/News-Room/Press-Releases/2017-INFORMS-Franz-Edelman-Award-finalists-selected-from-leading-analytics-teams-around-the-world) for the finalist announcement.

55. *DA Goldstein (M.D.), **Q. Chen**, T. Ayer, KW Chan (M.D.), K Virik (M.D.), A Hammerman (M.D.), B Brenner (M.D.), CR Flowers (M.D.), PS Hall (M.D.) (2017), “Bevacizumab for metastatic colorectal cancer: A global cost-effectiveness analysis,” *The Oncologist*, 22(6), 694-699, DOI:10.1634/theoncologist.2016-0455.
56. *R. Aggarwal (M.D.), **Q. Chen**, A. Goel (M.D.), N. Seguy (M.D.), R. Pendse (M.D.), T. Ayer, J. Chhatwal (2017) “Cost-Effectiveness of Hepatitis C Treatment using Generic Direct-Acting Antivirals Available in India,” *PLoS One*, 12 (5), <https://doi.org/10.1371/journal.pone.0176503>.
57. *H. Terawaki (M.D.), **C. Caglayan**, Q. Chen, A Rai, T. Ayer, CR. Flowers (M.D.) (2018) Microsimulation Modeling in Oncology, *JCO Clinical Cancer Informatics*, 2, 1-11.
58. *AR Ruiz (M.D.), **J Vlachy**, JW Lee (M.D.), EJ Gilmore (M.D.), T Ayer, et al. (2017), “Association of Periodic and Rhythmic Electroencephalographic Patterns With Seizures in Critically Ill Patients”, *JAMA Neurology* [IF: 13.6, #1 among all 40+ neurology journals], 74(2), 181-188.
59. *M. Capan, A. Khojandi, B. Denton, KD Williams, T. Ayer, J. Chhatwal, M. Kurt, JM Lobo, MS Roberts (M.D.), G. Zaric, S. Zhang, JS Schwartz (M.D.) (2017), “From Data to Improved Decisions: Operations Research in Healthcare Delivery”, *Medical Decision Making*, 37 (8), 849-859, doi: 10.1177/0272989X17705636.
60. ***Q. Chen**, T. Ayer, J. Chhatwal (2016), “Sensitivity Analysis in Sequential Decision Models: A Probabilistic Approach”, *Medical Decision Making*, 37 (2), 243-252, doi: 0272989X16670605.
61. ***Q. Chen**, N. Jain (M.D.), T. Ayer, W.G. Wierda (M.D.), C. R. Flowers (M.D.), S. O’Brien (M.D.), M. Keating (M.D.), H. M. Kantarjian (M.D.), J.Chhatwal (2016), “Economic Burden of Chronic Lymphocytic Leukemia in the Era of Oral Targeted Therapies in the United States”, *Journal of Clinical Oncology (JCO)* [IF: 32.9, the most widely read oncology publication periodical in the world among 100+ oncology journals], 35(2), 166-174.
 ○ This paper was covered by the *Economic Times* and *Cancer Network*⁴
62. *J. Chhatwal, **X. Wang**, T. Ayer, M. Kabiri, R.T. Chung (M.D.), C. Hur (M.D.), J. M. Donohue (M.D.), M. S. Roberts (M.D.), F. Kanwal (M.D.) (2016), “Hepatitis C Disease Burden in the United States in the Era of Oral Direct-Acting Antivirals”, *Hepatology* [IF: 14.079, highest ranking hepatology journal], 64(5), 1442-1450.
63. *J. Chhatwal, **S. Samur**, B Kues, T Ayer , MS Roberts (M.D.), F Kanwal (M.D.), C Hur (M.D.), DMS Donnell (M.D.), R Chung (M.D.) (2016), “Optimal Timing of Hepatitis C Treatment in Patients on The Liver Transplant Waiting List”, *Hepatology*, 65(3), 777- 788F

⁴ See <http://www.cancernetwork.com/hematologic-malignancies/cost-cll-management-expected-skyrocket> and <http://health.economictimes.indiatimes.com/news/industry/targeted-therapy-drugs-could-radically-increase-the-cost-of-leukemia-treatment/55505495>

64. *T. He (M.D.), K. Li, M.S. Roberts (M.D.), A. C. Spaulding (M.D.), T. Ayer, J. J. Grefenstette, J. Chhatwal (2016), “Prevention of Hepatitis C by Screening and Treatment in United States Prisons,” *Annals of Internal Medicine* [IF: 21.3, the most cited general medicine journal and one of the most influential journals in the world], 164(2), 84-92.
 ○ This paper was covered in NPR⁵
65. *G. Rust (M.D.), S. Zhang (M.D.), Z. Yu, L. Caplan (M.D.), S. Jain (M.D.), T. Ayer, L. McRoy, R.S. Levine (M.D.) (2016) “Counties Eliminating Racial Disparities in Colorectal Cancer Mortality,” *Cancer*, 122(11), 1735-1748.
66. *T. Ayer, O. Alagoz, N.K. Stout, E.S. Burnside (M.D.) (2015), “Heterogeneity in Women’s Adherence and Its Role on Optimal Breast Cancer Screening Policies,” *Management Science* [one of the top-ranking Management Science/Operations Research journals, in FT 50 list], 62 (5), 1339-1362.
 ○ First Prize Winner of the 2011 INFORMS Doing Good with Good OR Competition
67. *T. Ayer (2015), “Inverse optimization for Assessing Emerging Technologies in Breast Cancer Screening,” *Annals of Operations Research*, 230(1), 57-85.
68. *DA Goldstein (M.D.), **Q. Chen**, T. Ayer, D. Howard, J. Lipscomb, SS Ramalingam (M.D.), FR Khuri (M.D.), CR Flowers (M.D.) (2015), “Necitumumab in Metastatic Squamous Lung Cancer – Establishing a Value-Based Cost,” *JAMA Oncology* [IF: 24.8, one of the highest-ranking oncology journals], 1(9), 1293-1300.
 ○ This paper was covered in the Wall Street Journal and Washington Post⁶
69. ***Q. Chen**, T. Ayer, L. Nastoupil (M.D.), JL Koff (M.D.), L Jean (M.D.), AD Staton (M.D.), J. Chhatwal, CR Flowers (M.D.) (2015), “Population-specific prognostic models are needed to stratify outcomes for African-Americans with diffuse large B-cell lymphoma,” *Leukemia and Lymphoma*, 57(4), 842-851.
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71. ***J. Yan**, T. Ayer, P. Keskinocak, A. Caughey (M.D.) (2015), “Preference-Sensitive Risk Cutoff Values for Prenatal Integrated Screening Test for Down Syndrome,” *Prenatal Diagnosis*, 35(7), 645-51.
72. ***A. Bonifonte**, T. Ayer, E. Veledar, **A. Clarke**, P. Wilson (M.D.) (2015), “Antecedent blood pressure as a predictor of Cardiovascular Diseases,” *Journal of the American Society of Hypertension*, 9(9), 690-696.

⁵ See <http://www.npr.org/sections/health-shots/2015/11/23/457145471/treating-prisoners-with-hepatitis-c-may-be-worth-the-hefty-price>

⁶ See <https://www.washingtonpost.com/news/wonk/wp/2015/08/27/cancer-drugs-arent-just-really-expensive-theyre-a-bad-value/> and <http://www.wsj.com/articles/lillys-lung-cancer-drug-portrazza-to-cost-11-430-a-month-1449867424>

73. *AD Staton (M.D.), JL Koff (M.D.), **Q. Chen**, T Ayer, CR Flowers (M.D.) (2015), “Next-generation prognostic assessment for diffuse large B cell lymphoma”, *Future Oncology*, 20, 1-15 (invited paper).
74. *DA Goldstein (M.D.), **Q. Chen**, T. Ayer, D. Howard, J. Lipscomb (M.D.), RD Harvey (M.D.), B El-Rayes (M.D.), CR Flowers (M.D.) (2015), “First and Second line bevacizumab in addition to chemotherapy for metastatic colorectal cancer: A US based cost-effectiveness analysis,” *Journal of Clinical Oncology (JCO)* [IF: 32.9, the most widely read oncology publication periodical in the world among 100+ oncology journals], 33(10), 1112-1118.
75. *N Jain, **Q. Chen**, T Ayer et al. (2015), “Prevalence And Economic Burden of Chronic Lymphocytic Leukemia (CLL) In The Era Of Oral Targeted Therapies”, *Blood, the Journal of The American Society of Hematology*, 126, 23, 871.
76. ***Q. Chen**, T. Ayer, AC Rose (M.D.), LJ Nastoupil (M.D.), CR Flowers (M.D.) (2015), “Comparing the Cost Effectiveness of Rituximab Maintenance and Radio- immunotherapy Consolidation Therapy Following First-line Chemo- Immunotherapies for Follicular Lymphoma,” *Value in Health* [IF: 4.7, one of the most prestigious health economics journals, ranking 7th out of 87 in Health Policy & Services], 18(2), 189-97.
 ○ This paper was covered by ISPOR News and Press⁷
77. *DA Goldstein (M.D.), **Q. Chen**, T. Ayer, D. Howard, J. Lipscomb, RD Harvey (M.D.), B El-Rayes (M.D.), CR Flowers (M.D.) (2014), “Cost Effectiveness Analysis of Pharmacokinetically Guided 5-Fluorouracil therapy in FOLFOX chemotherapy for metastatic colorectal cancer,” *Clinical Colorectal Cancer*, 13(4), 219-25.
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79. *T. Ayer, O. Alagoz, N.K. Stout (2012), “A POMDP Approach to Personalize Mammography Screening Decisions,” *Operations Research*, 60, 1017-1018.
 ○ First Prize Winner of the 2009 INFORMS Best Poster Presentation Award
 ○ Second Prize Winner of the 2011 INFORMS MSOM Student Paper Competition
 ○ Finalist in 2011 INFORMS Decision Analysis Society Student Paper Competition
 ○ This paper was covered in *Daily Herald*⁸
80. ***Q. Chen**, T. Ayer, L. J. Nastoupil (M.D.), R. Sinha (M.D.), H. Zhang (M.D.), C. R. Flowers (M.D.) (2012), “Initial Management Strategies for Follicular Lymphoma,” *International Journal of Hematologic Oncology*, 1(1), 35-45 (invited paper).
81. T. Ayer, O. Alagoz, J. Chhatwal, J. W. Shavlik, C.E. Kahn, E.S. Burnside (2010), “Breast

⁷ See <http://press.ispor.org/index.php/maintenance-and-consolidation-therapies-cost-effective-strategies-to-prolong-remission-in-patients->

⁸ See <http://www.dailyherald.com/article/20130809/entlife/708099955/print/>

Cancer Risk Estimation with Artificial Neural Networks Revisited: Discrimination and Calibration,” *Cancer*, 116, 3310–21.

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83. T. Ayer, M.U.S. Ayvaci, Z.X. Liu, O. Alagoz, E.S. Burnside (2010), “Computer Aided Diagnostic Models in Breast Cancer Screening,” *Imaging in Medicine*, 2(3), 313-23 (invited paper).

B2. Conference Presentation with Proceedings (Refereed)[first author is the presenting author]

1. J Xiao, M Haseeb, F Kanwal, S Kim, T Ayer, V Ajmera, DQ Huang, M Tincopa, R Loomba, J Chhatwal (2023), “Cost-Effectiveness of a Clinical Care Pathway for the Screening of Nonalcoholic Fatty Liver Disease in Patients with Type 2 Diabetes Mellitus”, *Value in Health*, 26 (12), S320.
2. C Kirshner, S Merdan, M Erdogan, M Lydston, T Ayer, J Chhatwal (2023), “How Is Machine Learning Being Used in HEOR? A Systematic Review of Trends and Methods”, *Value in Health*, 26 (12), S405.
3. T Ayer, S Merdan, VO Mathieu, TV Efferterre, I Yildirim, F Tomaka, M Pau, B Bookhart, J Chhatwal, AC El Khoury (2023), “Health Impact of a Potential HIV Vaccine Among Men Who Have Sex with Men in the United States”, *Value in Health*, 26 (6), S275.
4. S Samur, VK Rustgi, ND Parikh, JD Yang, LR Roberts, MH Nguyen, AB Ozbay, T Ayer, AG Singal, J Chhatwal (2023), “Cost of Liver Cancer Screening in Patients with Cirrhosis”, *Value in Health*, 26 (6), S152.
5. S Merdan, C Kirshner, M Erdogan, M Lydston, T Ayer, J Chhatwal (2023), “Intersection of Machine Learning and HEOR: A Systematic Review”, *Value in Health*, 26 (6), S163-S164.
6. J Chhatwal, S Samur, JD Yang, LR Roberts, MH Nguyen, AB Ozbay, T Ayer, ND Parikh, AG Singal (2023), “Cost-Effectiveness of Hepatocellular Carcinoma Surveillance Programs Using Multi-Target Blood Test”, *Gastroenterology*, 164(6), p.S-1412.
7. J Chhatwal, S Samur, JD Yang, LR Roberts, MH Nguyen, AB Ozbay, T Ayer, ND Parikh, AG Singal (2023), “Effectiveness of HCC surveillance programs using multitarget blood test: A modeling study”, *Hepatology Communications*, 7 (6), e0146.
8. *J Chhatwal, S Samur, JD Yang, L Roberts, M Nguyen, AB Ozbay, T Ayer (2022), “Could a multi-target blood test make hepatocellular carcinoma surveillance programs more effective? A modelling-based virtual trial”, *Journal of Hepatology*, 77, S214-S215
9. *T Castellano, C Washington, KN Moore, Y Yildiz, A Surinach, J Ting, J Chhatwal, T. Ayer (2022), “Cervical cancer geographical burden analyzer: An interactive, open-access tool for

understanding geographical disease burden in patients with recurrent or metastatic cervical cancer”, *Journal of Clinical Oncology*, 40 (16_suppl), 5523-5523.

10. *K Sonawane, T Castellano, C Washington, T Ayer, A Surinach, C Kirshner, J Ting, J Chatwal, KN Moore (2022), “Factors associated with receipt of second-line recurrent or metastatic cervical cancer treatment in the United States: A retrospective administrative claims analysis.”, *Journal of Clinical Oncology*, 40 (16_suppl), 5532-5532
11. *J Ting, T Ayer, OO Dalgic, M Erdogan, E Yaylali, J Chhatwal (2022), “Productivity losses under various second-line recurrent or metastatic cervical cancer treatment scenarios in the United States”, *Journal of Clinical Oncology* 40 (16_suppl), e17520-e17520
12. *A Elhabr, T Ayer, J Newsome, N Kokabi, R Smith, J Gichoya (2022) “Racial disparities in utilization of interventional radiology, operative, and non-operative hemorrhage management for patients with traumatic injuries”, *Journal of Vascular and Interventional Radiology* 33 (6), S43
13. *J Chhatwal, S Samur, JD Yang, LR Roberts, M Nguyen, AB Ozbay, T Ayer, N Parikh, AG Singal (2022), “Multi-target blood test to improve the performance of hepatocellular carcinoma surveillance programs: A modeling-based virtual trial”, *Journal of Clinical Oncology* 40 (4_suppl), 405-405
14. *M Kummer, C Rich, U Laitenberger, D Hughes, T Ayer (2022), “Healthy Reviews! The Impact of Online Physician Ratings on Healthcare Outcomes” *Academy of Management Proceedings* 2022 (1), 18145.
15. *AG Singal, B Haaland, ND Parikh, B Ozbay, C Kirshner, S Chakankar, K Porter, J Chhatwal, T Ayer (2022), “Comparison of a novel multi-target blood test with ultrasound and alpha-fetoprotein for hepatocellular carcinoma surveillance: systematic review and network meta-analysis”, *Hepatology* 74 (6), 1404A-1405A
16. *J Julien, T Ayer, C Barbosa, W Dowd, EB Tapper, J Chhatwal (2022), “Increased alcohol consumption during COVID-19 pandemic is projected to increase alcohol-related liver disease: A modeling study”, *Hepatology*, 326A-327A
17. *J Julien, T Ayer, E Tapper, J Chhatwal (2021), “Long-Term Effect of Increased Alcohol Consumption during COVID-19 Pandemic on Alcohol-Related Liver Disease: A Modelling Study”, *Medical Decision Making*, E114-E115
18. *H Jang, M Ozkaynak, T Ayer, MR Sills (2021), Factors associated with first medication time for children treated in the emergency department for asthma, *Pediatric Emergency Care*, 37 (1), e42-e47
19. ***J. Julien**, T. Ayer, C Barbosa, W Dowd, EB Tapper, J Chhatwal (2021), “Increased alcohol consumption during COVID-19 pandemic is projected to increase alcohol-related liver disease: A modeling study”, *Hepatology*, 74(1), 326A-327A.
 - AASLD Presidential Poster of Distinction

20. AG Singal, B Haaland, ND Parikh, B Ozbay, C Kirshner, S Chakankar, K Porter, J Chhatwal, Turgay Ayer (2021), “Comparison of a Novel Multi-Target Blood Test With Ultrasound And Alpha-Fetoprotein For Hepatocellular Carcinoma Surveillance: Systematic Review and Network Meta-Analysis”, *Hepatology*, 74(6), 1404A-1405A.
21. J Chhatwal, OO Dalgic, M Mesa-Frias, N Buyukkaramikli, A Cox, T Van Effleterre, A Griffin, T Ayer, IF Yildirim, BJ Patterson, A El Khoury (2021), “ When Can We Lift Non-Pharmaceutical Interventions with the Availability of COVID-19 Vaccine in the United States?” *Health Services Research*, 56, 78-89.
22. ***S. Merdan, K. Subramanian**, T. Ayer, J. Weyenberg, J. Koff, CR Flowers (2020), “Machine Learning Prediction of Survival In Diffuse Large B-Cell Lymphoma Based On Gene-Expression Profiling”, *Value In Health*, 23, S23.
23. ***Z. She, Z. Wang**, T. Ayer, A. Toumi, J. Chhatwal (2020), “Estimating County Level COVID-19 Exponential Growth Rates Using Generalized Random Forests”, *NIPS ML4Health Workshop*.
24. *T. Ayer, **JA McCandlish**, J. Chhatwal (2020), “Machine Learning Based Metamodel For Cost-Effectiveness Analysis of Hepatitis C Treatment”, *Value in Health*, 23, S172.
25. *J. Chhatwal, D. Dalgic, P Mueller, M Adey, **Y Xiao**, MA Ladd, BP Linas, T. Ayer (2020) “COVID-19 Simulator: An Interactive Tool to Inform COVID-19 Intervention Policy Decisions in the United States”, *Value In Health*, 23, S556.
26. * T. Ayer, **Z. She**, Y. Zhuo, J. Chhatwal (2020), “Game-Theoretical Analysis of Netflix Payment Model For Hepatitis C Treatment”, *Value In Health*, 23, S135.
27. *J. Chhatwal, **Q. Chen**, T. Ayer (2019), “An Optimization Tool for Global Hepatitis C Elimination: A Case For Hepatitis C Elimination In China”, *Hepatology*, 70, S1.
28. *J. Chhatwal, Y Zhuo, **Q Chen**, T Zhan, W Chen, T Ayer, C Nwankwo, A Puenpatom (2019), “An Optimization Tool for Global Hepatitis C Elimination: A Case For Hepatitis C Elimination In China”, *Hepatology*, 70, S349A.
29. ***A. Bonifonte**, T. Ayer (2018), “*An Analytics Approach to Randomized Controlled Trial Design for Hypertension Management*”, *NIPS ML4Health Workshop*.
30. ***J. Julien**, T. Ayer, E. Bethea, J. Chhatwal (2018), “Projection of Prevalence and Mortality Trends in Alcohol-Related Liver Disease in the United States”, *Hepatology*, 68, 81A.
31. *J Chhatwal, **Q Chen**, ED Bethea (M.D.), T Ayer, Y Zhuo, C. Hur (M.D.), A Spaulding (M.D.), F Kanwal (M.D) (2018), “Changing Cascade of Care for Hepatitis C in the Era of Direct-Acting Antivirals”, *Hepatology*, 68, 918A-919A.
32. *J. Chhatwal, P. Mueller, **Q. Chen**, T. Ayer et al. (2018), “Routine Surveillance For Hepatocellular Carcinoma is Cost-Effective In Hepatitis C Patients After Viral Eradication”,

Hepatology, 68, 571A.

33. *J. Chhatwal, **Q. Chen**, E. Bethea, T. Ayer et al. (2018), “Changing Cascade of Care for Hepatitis C in the Era of Direct-Acting Antivirals”, *Hepatology*, 68, S1.
34. *M Deck, K Lee, C White, T Ayer (2017), “Improving Cryoprecipitate Collection Operations Using Operations Research and Analytics-Based Methods”, *Transfusion*, 57, 235A.
35. ***C. Caglayan**, H Terewaki, T. Ayer et al. (2017), “A Multi-State Model for Follicular Lymphoma in Patients with Early Progression to Second Line Therapy”, *Blood*, 130, 2187.
36. *J. Chhatwal, **Q. Chen**, T. Ayer et al. (2017), “Updated Prevalence of Hepatitis C in the United States: Results from a Simulation Model including the non-NHANES population”, *Hepatology*, 66, 529A.
37. ***Q. Chen**, AD Staton, T. Ayer, DA Goldstein, JL Koff, CR Flowers (2017), “The Cost-Effectiveness of Precision Medicine Treatment Strategies For Diffuse Large B-Cell Lymphoma”, *Value In Health*, 20, 5, A107.
38. *D Drezza, **W Chen**, P Keskinocak, T Ayer, R Jin, S Barlow, S Xanthakos, J Lavine, M Vos (2016), “Standardized Time Average of ALT is a Better Marker of Histologic Improvement in NAFLD”, *Hepatology*, 63, 559A-560A.
39. *A Staton, **Q Chen**, T. Ayer, D Goldstein, J Koff, CR Flowers (2015), “Cost-Effectiveness of Subtype-Based Treatment Strategies for Diffuse Large B-Cell Lymphoma Patients (DLBCL)”, *Blood, The Journal of The American Society of Hematology*, 126, 23, 4476.
40. *E Veledar, **A Bonifonte**, T Ayer, P Wilson, “A Life Course approach to Blood Pressure and Cardiovascular Risk”, *Journal of the American College of Cardiology*, A1407.
41. *M. Oster, **C. Caglayan**, R. Simeone, P. Keskinocak, T. Ayer (2015), “Optimizing the Screening Algorithm for Critical Congenital Heart Disease: A Data-Driven Approach”, *Circulation*, 132, A15653
42. *C Hebson, D Lin, T Ayer, **J Vlachy**, M Badell, M Platner, A Kawabarwa, J Shinnick, A Sahu, W Book (2014), “Neonatal Outcomes and Maternal Morbidity Associated with Pregnancy in Women with Congenital Heart Disease”, *Circulation*, 130, A18062.
43. ***A. Bonifonte**, T. Ayer, E. Veledar, A. Clarke, P. Wilson, “Role and Importance of Antecedent Blood Pressure In Predicting Outcomes In Cardiovascular Disease,” *Hypertension*, 64, A433.
44. * **J Vlachy, M Jo, Q Li**, T Ayer, P Keskinocak, L Olson, J Swann, A Vats(2014), “Continuous Electroencephalography for Seizure Detection in Children: Who Should We Monitor?”, *Critical Care Medicine*, 42, A1500.

45. ***Q Chen**, T Ayer, LJ Nastoupil, CR Flowers (2013), “Racial disparities in prediction of 5-year overall survival for diffuse large B-cell lymphoma (DLBCL) patients”, *Blood*, 122 (21), 2922.
46. * **Q Chen**, T Ayer, AC Rose, LJ Nastoupil, CR Flowers (2013), “Comparing the cost-effectiveness of rituximab maintenance (MR) and radioimmunotherapy (RIT) consolidation therapy following first-line chemo/immunochemotherapies for follicular lymphoma”, *Blood*, 122 (21), 2923.

B3. Other Refereed Material

T. Ayer, C. Zhang, C. Zeng, C. White, R. Joseph (2020) “Improving Blood Collection Operations with Data-Driven Analytics: Winner of 2017 MSOM Practice-Based Research Competition”, INFORMS MSOM Blogs, MSOM Review, <https://www.informs.org/Blogs/M-SOM-Blogs/M-SOM-Review/Improving-Blood-Collection-Operations-With-Data-Driven-Analytics-Winner-of-2017-M-SOM-Practice-Based-Research-Competition>

B4. Submitted Journal Articles

84. ***J. Vlachy**, T. Ayer, P. Keskinocak, “Flexible Bed Management: A New Generalized Policy”, under review at *Operations Research*.
85. ***C. Rich**, M Kummer, U Laitenberger, D Hughes, T Ayer , “Healthy reviews? The impact of online doctor ratings on healthcare outcomes”, under review at *Management Science*.
86. *J Chhatwal, OO Dalgic, P Mueller, M Adee, **Y Xiao**, MA Ladd, BP Linas, T Ayer (2021), “COVID-19 Simulator: An Online Tool for Evaluation of Strategies to Address COVID-19 Pandemic”, under review at *Value in Health*.
87. *J Chhatwal, M Adee, **Y Xiao**, OO Dalgic, P Mueller, T Ayer, BP Linas, “Safe Opening Analysis for Colleges in the Presence of SARS-CoV-2”, under review at *JAMA Public Forum*.
88. *J Chhatwal, M Adee, **Y Xiao**, OO Dalgic, P Mueller, BP Linas, T Ayer, “State-level Estimation of SARS-CoV-2 Seroprevalence and Immunity in the United States”, under review at *Annals of Internal Medicine*.
89. *M Moore, C Li, M Douglas, **Z She**, P Baltrus, A Rao, T Ayer, **C Rich**, A Gaglioti, “Switching between fee-for-service and managed care associated with increased total costs, emergency department visits, hospitalizations, and hospital inpatient bed days, in Texas Medicaid adult beneficiaries”, under review at *JAMA*.
90. ***J. Yan**, T. Ayer, P. Keskinocak, R. Palmer (*M.D.*), “Capacity Allocation in a School-Based Asthma Care Model for Pediatric Patients”, under revision, *NRL*.

91. * **Caglayan C.**, Ayer T., & Ekwueme D.U., “Assessing Multi-Modality Screening Strategies for Women at High Risk of Developing Breast Cancer”, under revision.
92. * **Caglayan C.**, Liu Y., Pasupathy K., Nestler D., Ayer T., & Sir M.Y., “Physician Staffing in Emergency Rooms (ERs): Opening the Black-box of ER Care via a Multi-Class Multi-Stage Network”, under revision.

C. OTHER PUBLICATIONS AND CREATIVE PRODUCTS

- COVID-19 Simulator (2021), www.covid19sim.org, A multi-institutional effort to provide practical risk mitigation tools for managing COVID-19 to public health decision makers
- T. Ayer, J Chhatwal, S Merdan (2021), “Machine Learning in the Real-World Evidence and HEOR Fields”, *The Evidence Base* ([interview](#))
- A Atasu, T. Ayer, B. Toktay, C. Zhang (2017), "Bridging Surplus with Need: Improving Healthcare in the Developing World," with Atasu, A., T. Ayer, L.B. Toktay. *Huffington Post* (editorial).

D. PRESENTATIONS

D1. Tutorial/Keynote at Conferences

1. T. Ayer, “Informing State-level COVID-19 Testing and Contact Tracing using the COVID-19 Simulator”, 42nd Annual Meeting of the Society for Medical Decision Making, 2020.
2. T. Ayer, “Perspectives on Successful Healthcare Analytics Projects,” Distinguished Speaker Series, INFORMS Health Applications Society, INFORMS, Seattle, WA, October 20-23, 2019
3. T. Ayer, P. Keskinocak, J. Swann, “Global Healthcare Operations: Research in Public Health for Efficient, Effective, and Equitable Outcomes,” INFORMS, San Francisco, CA, November 9-12, 2014.
4. T. Ayer, “Future of Chronic Disease Screening and Treatment,” SAMSI Data Driven Healthcare Workshop, Raleigh, NC, USA, August 26-29, 2012.

D2. Invited Seminar Presentations at Peer Institutions [given by Ayer]

1. Bogazici University, Istanbul, Turkey, 2023.
2. Koc University, Istanbul, Turkey, 2023.
3. John Hopkins University, Department of Civil and Systems Engineering, 2023.
4. John Hopkins University, Department of Civil and Systems Engineering, 2022.
5. Public Health England and University of Cambridge, International Seminar Series on Decision Support for Health Systems after COVID-19: Data, Models and Methods, 2021
6. London Business School, 2020 (rescheduled to a future date due to pandemic)
7. University of Minnesota, School of Public Health, 2020 (rescheduled to a future date due to pandemic)
8. National University of Singapore, August 2019
9. Singapore Management University, August 2019
10. University of Toronto, Department of Mechanical and Industrial Engineering, April 2019

11. Carnegie Mellon University, Heinz College of Information Systems and Public Policy, March 2019
12. McGill University, Desautels Faculty of Management, October 2018
13. Alberta School of Business, October 2018.
14. University of Southern California, Center for Artificial Intelligence in Society, September 2018.
15. University of Cambridge, Judge Business School, July 2018.
16. London Business School, June 2018.
17. University College London, School of Management, June 2018.
18. John Hopkins University, Carey Business School, March 2018
19. University of Maryland, Robert H. Smith School of Business, February 2018.
20. MIT, Sloan School of Management, October 2017.
21. Centers for Disease Control & Prevention (CDC), Division of Cancer Prevention and Control, June 2017.
22. Harvard Medical School, November 2017.
23. Mayo Clinic, Center for the Science of Health Care Delivery and Division of Health Care Policy & Research, February 2017.
24. Carnegie Mellon University, Tepper School of Business, January 2017.
25. The University of Texas at Austin, Operations Research and Industrial Engineering, February 2017.
26. University of Minnesota, Industrial and Systems Engineering, December 2016.
27. Harvard University, Institute for Technology Assessment, November 2016.
28. University of Michigan, Industrial Engineering and Operations, October 2016.
29. Northwestern University, Industrial Engineering and Management Sciences, October 2016.
30. Harvard University & Mass General Hospital, Institute for Technology Assessment, November 2016.
31. University of Chicago, Booth School of Business, October 2016.
32. University of Tennessee, Industrial and Systems Engineering, April 2016.
33. Rutgers University Business School, New Brunswick, NJ, October 2015.
34. Kelley School of Business, Indiana University, Bloomington, IN, October 2015.
35. The MD Anderson Cancer Center, Houston, TX, November 2014.
36. Bogazici University, Istanbul, Turkey, July 2014.
37. Koc University, Istanbul, Turkey, July 2014.
38. Ozyegin University, Istanbul, Turkey, July 2014.
39. MIT, Operations Research Center, Boston, MA, January 2013.
40. Emory University, Winship Cancer Institute, December 2013.
41. Emory University, Emory Clinical Cardiovascular Research Institute, September 2013.
42. The University at Buffalo, Department of Industrial and Systems Engineering, NY, March 2012.
43. Centers for Disease Control and Prevention, Division of Cancer Control and Prevention, Atlanta, GA, January 2012.
44. Penn State University, Department of Industrial and Manufacturing Engineering, Department of Industrial and Manufacturing Engineering, February 2011.
45. University of Minnesota, Department of Industrial and Systems Engineering, February 2011.

46. Rutgers University, Department of Industrial and Systems Engineering, February 2011.
47. MIT, Engineering Systems Division, Boston, MA, January 2011.
48. University of British Columbia, Sauder School of Business, Vancouver, Canada, January 2011.
49. Indiana University, Kelley School of Business, Bloomington, IN, January 2011.

D3. Invited Conference and Workshop Presentations [first author is the presenting author]

1. T Ayer (2023), “Improving Blood Collection Operations at the American Red Cross”, Frontiers of Engineering Symposium, Sep 10-13, Boulder, CO.
2. Z She, Z Wang, J Chhatwal, T Ayer, “Small Area Estimation of Case Growths for Timely Covid-19 Outbreak Detection”, INFORMS Annual Meeting, Oct 16-19, 2023.
3. AJ McCandlish, T. Ayer, Bilal Gokpinar, “Meditating the Effect of Market Competition on Episode-based Payments”, INFORMS Annual Meeting, Oct 16-19, 2023.
4. AJ McCandlish, T. Ayer, Bilal Gokpinar, “The Effect of Episode-based Payments on Cost and Quality: An Empirical Investigation”, INFORMS Annual Meeting, Oct 16-19, 2022.
5. J Xiao, T. Ayer, J Chhatwal, “Periodic Vaccination Against COVID-19”, INFORMS Annual Meeting, Oct 16-19, 2022.
6. Z Wang, Z She, J Chhatwal, T Ayer, “Small Area Estimation of Case Growths for Timely Covid-19 Outbreak Detection”, INFORMS Annual Meeting, Oct 16-19, 2022.
7. Z. She, T. Ayer, B. Gokpinar, D Hughes, “Reverse Cross Subsidization in Healthcare Capitation Programs: Evidence from Medicare Advantage”, INFORMS Annual Meeting, Oct 16-19, 2022.
8. T. Ayer, C. Zhang, C. Zeng, C.C. White, V. Roshan Joseph, K. Lee, Z. Ozkaynak, M. Deck, “American Red Cross Uses Analytics-based Methods to Improve Blood Collection Operations”, INFORMS Annual Meeting, Oct 24-27, 2021.
9. J. Xiao, T. Ayer, J. Chhatwal, “Periodic Vaccination Against SARS-CoV-2: Some Projections for The United States”, INFORMS Annual Meeting, Oct 24-27, 2021.
10. Z. She, Y. Zhuo, J. Chhatwal, T. Ayer, “The ‘Netflix Model’: A New Payment Model For Asymptomatic Disease Management”, INFORMS Annual Meeting, Oct 24-27, 2021.
11. A. Elhabr, C. Zhang, T. Ayer, “Outcome-based Pharmaceutical Contracting with Heterogeneous Patient Groups”, INFORMS Annual Meeting, Oct 24-27, 2021.
12. Z. Wang, Z. She, T. Ayer, S. Yang, “Estimating Heterogeneous Treatment Effects with Modern Mixed Integer Programming Formulations”, INFORMS Annual Meeting, Oct 24-27, 2021.
13. Chhatwal, T. Ayer Informing Opening of Colleges During Covid-19 Pandemic: An Analysis Of 800 Colleges In the US”, INFORMS Annual Meeting, Oct 24-27, 2021.
14. T. Ayer, “Award Session: Mehrotra Research Excellence Award Finalists: Perspectives on Data-driven Practiced-focused Research”, INFORMS Annual Meeting, Nov 8-13, 2020.
15. Z. Wang, T. Ayer, Z. She, “Estimating County Level COVID-19 Exponential Growth Rates Using Generalized Random Forests”, INFORMS Annual Meeting, Nov 8-13, 2020.
16. Z. She, T. Ayer, D. Montenera, “Can Big Data Cure Risk Selection in Healthcare Capitation Programs”, INFORMS Annual Meeting, Nov 8-13, 2020.
17. Y. Kim, M. Ayvaci, S. Raghunathan, T. Ayer, “When IT Creates Legal Vulnerability: Not Just Overutilization but Underprovisioning of Health Care Could be a Consequence”, INFORMS Annual Meeting, Nov 8-13, 2020.

18. Z. She, T. Ayer, B. Gokpinar, "Reverse Cross Subsidization In Healthcare Capitation Programs: Evidence From Medicare Advantage", INFORMS Annual Meeting, Nov 8-13, 2020.
19. Z. She, Y. Zhuo, J. Chhatwal, T. Ayer, "Financing Hepatitis C Treatment Through the Netflix Model", INFORMS Annual Meeting, Oct 20-23, 2019.
20. A. Bonifonte, T. Ayer, B. Haaland, P. Wilson, "An Analytics Approach to Guiding Randomized Control Trial Design in Hypertension Management", INFORMS Annual Meeting, Oct 20-23, 2019.
21. Z. She, T. Ayer, D. Montenera, "Can Big Data Cure Risk Selection in Healthcare Capitation Programs", INFORMS Annual Meeting, Oct 20-23, 2019.
22. C. Zhang, T. Ayer, C.C. White, "Platelet Inventory Sharing in a Two-hospital System", INFORMS Annual Meeting, Oct 20-23, 2019.
23. C. Zhang, A. Atasu, T. Ayer, B. Toktay, "A Mechanism Design Approach for Medical Surplus Product Allocation", INFORMS Annual Meeting, Oct 20-23, 2019.
24. Z. She, T. Ayer, B. Gokpinar, "Pay for Quality or Pay for Selection? Evidence of Reverse Cross Subsidization in Healthcare", INFORMS Annual Meeting, Oct 20-23, 2019.
25. T. Ayer, C. Zhang, A. Bonifonte, J. Chhatwal, A. Spaulding, "Prioritizing Hepatitis C Treatment in US Prisons", INFORMS Annual Meeting, Oct 20-23, 2019.
26. Q. Chen, T. Ayer, J. Chhatwal, "Resource Allocation for Hepatitis C Elimination", INFORMS Annual Meeting, Oct 20-23, 2019.
27. T. Ayer, J. Vlachy, M. Ayvaci, "The Business of Healthcare: Physician Integration in Bundled Payments", INFORMS Annual Meeting, Nov 4-7, 2018.
28. A. Bonifonte, T. Ayer, B. Haaland, P. Wilson, "Analytics in Blood Pressure Management and Control: From Data to Decisions", INFORMS Annual Meeting, Nov 4-7, 2018.
29. Y. Kim, M. Ayvaci, S. Raghunathan, T. Ayer, "When IT Creates Legal Vulnerability: Not Just Overutilization but Underprovisioning of Health Care Could be a Consequence", INFORMS Annual Meeting, Nov 4-7, 2018.
30. C. Zhang, T. Ayer, C.C. White, "Perishable Inventory in a Two-location System", INFORMS Annual Meeting, Nov 4-7, 2018.
31. T. Ayer, C. Zhang, A. Bonifonte, J. Chhatwal, A. Spaulding, "Prioritizing Hepatitis C Treatment in US Prisons", INFORMS Annual Meeting, Nov 4-7, 2018.
32. Z. She, T. Ayer, D. Montenera, "Pay for Quality or Pay for Selection? An Analysis of the Capitated Payment Models in Healthcare", INFORMS Annual Meeting, Nov 4-7, 2018.
33. C. Caglayan, T. Ayer, K. Pasupathy, S. Pruthi, "Personalized Risk Management Strategies for Women at High Risk of Developing Breast Cancer and the Role of Adherence", INFORMS Annual Meeting, Nov 4-7, 2018.
34. Q. Chen, T. Ayer, J. Chhatwal, "Resource Allocation for Hepatitis C Elimination", INFORMS Annual Meeting, Nov 4-7, 2018.
35. C. Caglayan, T. Ayer, D. Ekwueme, "Assessing Multi-Modality Breast Cancer Screening Strategies for High-Risk Populations", INFORMS Annual Meeting, Nov 4-7, 2018.
36. C. Zhang, T. Ayer, C.C. White, "Perishable Inventory in a Two-location System", INFORMS Annual Meeting, Oct 22-25, 2017.
37. T. Ayer, C. Zhang, A. Bonifonte, J. Chhatwal, A. Spaulding, "Prioritizing Hepatitis C Treatment in US Prisons", INFORMS Conference, INFORMS Annual Meeting, Oct 22-25, 2017.

38. Z. She, T. Ayer, "Market-Based Risk Adjustment in Capitated Healthcare Systems", INFORMS Annual Meeting, Oct 22-25, 2017.
39. C. Caglayan, T. Ayer, D. Ekwueme, "Assessing Multi-Modality Screening Policies for Women at High Risk of Breast Cancer", INFORMS Annual Meeting, Oct 22-25, 2017.
40. C. Zhang, A. Atasu, T. Ayer, B. Toktay, "Truthful Mechanisms for Medical Surplus Products Allocation", INFORMS Annual Meeting, Oct 22-25, 2017.
41. T. Ayer, C. Zhang, A. Bonifonte, A. Spaulding, J. Chhatwal, "Prioritizing Hepatitis C Treatment in United States Prisons", INFORMS Annual Meeting, Nov 13-16, 2016.
42. Q. Chen, T. Ayer, J. Chhatwal, "Optimal Liver Cancer Surveillance in Hepatitis C-Infected Population", INFORMS Annual Meeting, Nov 13-16, 2016.
43. Q. Chen, T. Ayer, J. Chhatwal, "Resource Allocation for Hepatitis C Elimination", INFORMS Annual Meeting, Nov 13-16, 2016.
44. J. Yan, T. Ayer, P. Keskinocak, A. Caughey, "Incorporating Fairness and Women's Preferences into Down Syndrome Diagnosis Decisions", INFORMS Annual Meeting, Nov 13-16, 2016.
45. Bonifonte, T. Ayer, B. Haaland, P. Wilson, "A Continuous Time Stochastic Model To Optimize Blood Pressure Treatment Decisions", INFORMS Annual Meeting, Nov 13-16, 2016.
46. T. Ayer, M. Ayvaci, Z. Karaca, J. Vlachy, "The Impact Of Health Information Exchanges On Emergency Department Length Of Stay", INFORMS Annual Meeting, Nov 13-16, 2016.
47. Caglayan, M. Sir, K. Pasupathy, T. Ayer, Y. Liu, "ED Physician Staffing via Multi-stage Multi-class Network", INFORMS Annual Meeting, Nov 13-16, 2016.
48. C. Zhang, A. Atasu, T. Ayer, B. Toktay, "Truth-Inducing Mechanisms for Medical Surplus Products Allocation", INFORMS Annual Meeting, Nov 13-16, 2016.
49. Z. She, T. Ayer, "Modeling Health Insurance Marketplaces", INFORMS Annual Meeting, Nov 13-16, 2016.
50. Y. Kim, M. Ayvaci, S. Raghunathan, T. Ayer, "Medical Guideline Making When Litigation Is A Concern: The Role Of Ubiquitous Health Information," INFORMS Annual Meeting, Nov 13-16, 2016.
51. C. Zhang, T. Ayer, C.C. White, "2-Approximation Algorithms for Perishable Inventory Control When FIFO Is an Optimal Issuing Policy", INFORMS Healthcare, Nashville, TN, July 29-31, 2015.
52. C. Zhang, T. Ayer, A. Bonifonte, J. Chhatwal, A. Spaulding, "Prioritizing Hepatitis C Treatment in United States Prisons", INFORMS Conference, Nov 1-4 2015.
53. C. Zhang, T. Ayer, C.C. White, "2-Approximation Algorithms for Perishable Inventory Control When FIFO Is an Optimal Issuing Policy", INFORMS, Philadelphia, PA, November 1-4, 2015.
54. T. Ayer, M. Ayvaci, Z. Karaca, J. Vlachy, "Does Health Information Exchange Move Patients Through Emergency Departments Faster?," INFORMS, Philadelphia, PA, November 1-4, 2015.
55. C. Caglayan, T. Ayer, "Optimal Screening Policies for Women at High Risk of Breast Cancer", INFORMS Conference, Nov 1-4 2015.
56. C. Caglayan, T. Ayer, D. Nestler, K. Pasupathy, M. Sir, "Physician Staffing in the Emergency Department: Opening the Blackbox", INFORMS Conference, Nov 1-4 2015.
57. T. Ayer, M. Ayvaci, S. Raghunathan, J. Vlachy, "Bundled Payments: The Roles of Organization and Diagnosis," INFORMS, Philadelphia, PA, November 1-4, 2015.

58. Q. Chen, T. Ayer, J. Chhatwal (2015). "Optimal Liver Cancer Surveillance in Hepatitis C-Infected Population. INFORMS Annual Meeting 2015, Philadelphia, PA, USA, November 1-4, 2015.
59. M. Cevik, T. Ayer, O. Alagoz, "Effects of Budgetary Restrictions on Mammography Screening Policies," INFORMS, San Francisco, CA, November 9-12, 2014.
60. Q. Chen, T. Ayer, J. Chhatwal, "Optimal Strategy for Hepatocellular Carcinoma Surveillance in Hepatitis C Patients," INFORMS, San Francisco, CA, November 9-12, 2014.
61. J. Yan, T. Ayer, P. Keskinocak, "Preference-Sensitive Risk Cutoff Values for Prenatal Integrated Screening Test for Down Syndrome," INFORMS, San Francisco, CA, November 9-12, 2014.
62. Q. Chen, T. Ayer, J. Chhatwal, "Optimal Policies for Hepatocellular Carcinoma Surveillance: A Dynamic Approach," INFORMS, Minneapolis, MN, USA, October 6-9, 2013.
63. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside, "Behavioral Heterogeneity in Women's Adherence and Its Role on Optimal Mammography Screening Policies," INFORMS, Phoenix, AZ, USA, October 14-17, 2012.
64. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside "Redesigning the Breast Cancer Screening Policies," INFORMS, Charlotte, NC, USA, November 13-16, 2011.
65. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside "Optimizing Mammography Screening Policies Considering Adherence: A Behavioral Perspective," INFORMS, Charlotte, NC, USA, November 13-16, 2011.
66. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside "Designing a New Breast Cancer Screening Program Considering Adherence," INFORMS, Austin, TX, USA, November 7-10, 2010.
67. T. Ayer, O. Alagoz, N.K. Stout, "A POMDP Approach To Personalize Mammography Screening Decisions," INFORMS, Austin, TX, USA, November 7-10, 2010.
68. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside, "Operations Research for Early Diagnosis of Breast Cancer," INFORMS, San Diego, CA, USA, October 11-14, 2009.
69. T. Ayer, O. Alagoz, N.K. Stout, "Using POMDPs to Determine the Optimal Mammography Screening Schedule From the Patient's Perspective," INFORMS, San Diego, CA, USA, October 11-14, 2009.
70. T. Ayer, O. Alagoz, J. Chhatwal, J. W. Shavlik, C. E. Kahn, "An Artificial Neural Network to Quantify Breast Cancer Risk Based on Mammography Findings," INFORMS, San Diego, CA, USA, October 11-14, 2009.
71. T. Ayer, O. Alagoz, N.K. Stout, "Optimizing Patient-Specific Mammography Schedule Using POMDPs," CORS-INFORMS International, Toronto, ON, Canada, June 14-17, 2009.
72. T. Ayer and O. Alagoz, "A POMDP Model for Optimizing Mammography Screening for Breast Cancer," INFORMS, Washington, DC, USA, October 12-15, 2008.
73. T. Ayer, O. Alagoz, E.S. Burnside, J. Chhatwal, C. E. Kahn, "Using Artificial Neural Networks to Predict the Risk of Breast Cancer," INFORMS, Seattle, WA, USA, November 4-7, 2007.
74. T. Ayer, O. Alagoz, E.S. Burnside, J. Chhatwal, C. E. Kahn, "Artificial Neural Networks in Prediction of the Risk of Breast Cancer," INFORMS Midwest Regional Conference, Northwestern University, IL, USA, August 24-25, 2007.

D4. Conference and Workshop Presentations [first author is the presenting author -stopped updating after 2021]

1. Z. She, T. Ayer, J. Chhatwal, Z. Wang, “Estimating County Level COVID-19 Exponential Growth Rates Using Generalized Random Forests”, POMS Annual Conference, 2021.
2. T. Ayer, J. Chhatwal, S. Merdan, “Introduction to Machine Learning for Health Economics and Outcomes Research”, ISPOR Annual Conference, 2021.
3. J. Julien, T. Ayer, E. Bethea, E. Tapper, J. Chhatwal, “Effect of Increased Alcohol Consumption During COVID-19 Pandemic on Alcohol-related Liver Disease: A Modelling Study”, 43rd Annual Meeting of the Society for Medical Decision Making, 2021.
4. J. Julien, T. Ayer, C Barbosa, W Dowd, EB Tapper, J Chhatwal (2021), “Increased alcohol consumption during COVID-19 pandemic is projected to increase alcohol-related liver disease: A modeling study”, Annual AASLD Conference, 2021.
5. AG Singal, B Haaland, ND Parikh, B Ozbay, C Kirshner, S Chakankar, K Porter, J Chhatwal, Turgay Ayer (2021), “Comparison of a Novel Multi-Target Blood Test With Ultrasound And Alpha-Fetoprotein For Hepatocellular Carcinoma Surveillance: Systematic Review and Network Meta-Analysis”, Annual AASLD Conference, 2021.
6. T. Ayer, J. Chhatwal, S. Merdan, “Introduction to Machine Learning for Health Economics and Outcomes Research”, ISPOR Europe, 2020.
7. T. Ayer, J. Chhatwal, S. Merdan, “The Potential Role and Impact of Machine Learning in Health Economics and Outcomes Research”, ISPOR Asia Pacific, 2020.
8. T. Ayer, “Informing State-level COVID-19 Testing and Contact Tracing using the COVID-19 Simulator”, 42nd Annual Meeting of the Society for Medical Decision Making, 2020.
9. J. Julien, T. Ayer, E. Bethea, E. Tapper, J. Chhatwal, “Long-Term Effect of Increased Alcohol Consumption during COVID-19 Pandemic on Alcohol-Related Liver Disease: A Modelling Study”, 42nd Annual Meeting of the Society for Medical Decision Making, 2020.
10. M Moore, C Li, M Douglas, Z She, P Baltrus, A Rao, T Ayer, C Rich, A Gaglioti, “Effect of Switching between Medicaid Fee-for-Service and Managed Care on Health Care Utilization in Texas”, Annual Research Meeting, Academy Health, 2020.
11. J. Julien, T. Ayer, E. Bethea, E. Tapper, J. Chhatwal, “Projection of the Prevalence and Mortality Associated with Alcohol-Related Liver Disease in the United States from 2016 to 2050”, 41st Annual Meeting of the Society for Medical Decision Making, Oct 20-23, 2019.
12. G. Nemutlu, P. Mueller, Q. Chen, T. Ayer et al., “Hepatocellular Carcinoma Surveillance in the Era of New Hepatitis C Antiviral Treatments: A Value of Information Analysis”, 41st Annual Meeting of the Society for Medical Decision Making, Oct 20-23, 2019.
13. J. Julien, T. Ayer, E. Bethea, J. Chhatwal, “A Projection of the Prevalence and Mortality Trends of Alcoholic Liver Cirrhosis in the United States”, 40th Annual Meeting of the Society for Medical Decision Making, Oct 13-17, 2018.
14. P. Mueller, Q. Chen, T. Ayer et al., “Cost-Effectiveness of Hepatocellular Carcinoma Surveillance in Hepatitis C Patients after Viral Eradication”, 40th Annual Meeting of the Society for Medical Decision Making, Oct 13-17, 2018.
15. E. Bethea, S. Samur, F. Kanwal, T. Ayer et al., “Cost-Effectiveness of Transplanting HCV-Infected Livers into Uninfected Recipients with Preemptive Antiviral Therapy”, 40th Annual Meeting of the Society for Medical Decision Making, Oct 13-17, 2018.
16. T. Ayer, C. Zhang, A. Bonifonte, A. Spaulding, J. Chhatwal, “Prioritizing Hepatitis C Treatment in U.S. Prisons”, Academic & Health Policy Conference on Correctional Health, Atlanta, GA, March 16-17, 2017.

17. T. Ayer, J. Vlachy, M. Ayvaci, S. Raghunathan, "The Business of Healthcare: Physician Integration in Bundled Payments", POMS, Seattle, WA, May 5-8, 2017.
18. J. Yan, T. Ayer, P. Keskinocak, "Age-Specific Risk-Cutoff Values in Prenatal-Integrated Screening for Down Syndrome Considering Fairness," Society for Health Systems (SHS) Conference, Orlando, FL, March 1-3, 2017.
19. C. Zhang, A. Atasu, T. Ayer, B. Toktay, "Truth-Inducing Mechanisms for Medical Surplus Products Allocation", POMS, Seattle, WA, May 5-8, 2017.
20. T. Ayer, C. Zhang, A. Bonifonte, A. Spaulding, J. Chhatwal, "A Decision Support Tool for Hepatitis C Treatment Prioritization in Prisons", Academic & Health Policy Conference on Correctional Health, Baltimore, MD, March 17-18, 2016.
21. C. Zhang, A. Atasu, T. Ayer, B. Toktay, "Truth-Inducing Mechanisms for Medical Surplus Products Allocation", POMS, Orlando, FL, May 6-9, 2016.
22. C. Zhang, T. Ayer, C.C. White, "Risk Pooling In a Two-Location Perishable Inventory System," TSL Workshop, Atlanta, GA, June 20-22, 2016.
23. J. Chhatwal, K. Li, T He, M. Roberts, T. Ayer (2016). "Hepatitis C Treatment in the United States Prisons Prevents Transmission in Society", 38th Annual Meeting of the Society for Medical Decision Making, Oct 23-26, 2016.
24. Q. Chen, T. Ayer, J. Chhatwal (2015). "Probabilistic Sensitivity Analyses in Sequential Decision." 37th Annual Meeting of the Society for Medical Decision Making, St. Louis, MO, USA, October 18-21, 2015.
25. N. Jain, Q. Chen, T. Ayer, S. O'Brien, M. Keating, W. Wierda, H. Kantarjian, C. Jagpreet (2015). "Economic Burden and Prevalence of Chronic Lymphocytic Leukemia (CLL) in the Era of Targeted Therapies." XVI International Workshop on Chronic Lymphocytic Leukemia, Sydney, Australia, September 7-9, 2015.
26. T. Ayer, O. Alagoz, N.K. Stout, E.B. Burnside, "Role of adherence in optimizing mammography screening", International Cancer Screening Network Meeting, Rotterdam, The Netherlands, June 2-4, 2015.
27. M. Oster, C. Caglayan, R. Simeone, P. Keskinocak, T. Ayer, "Optimizing the Screening Algorithm for Critical Congenital Heart Disease: A Data-Driven Approach", American Heart Association Scientific Meeting, Orlando, FL, November 7-11, 2015.
28. J. Chhatwal, X. Wang, M.S. Roberts, M. Kabiri, T. Ayer, J.M. Donohue, F. Kanwal, "The Cost of Making Hepatitis C a Rare Disease in the United States", American Association for the Study of Liver Diseases, The Liver Meeting 2015, San Francisco, CA, November 13-17, 2015.
29. J. Chhatwal, X. Wang, F. Kanwal, M. Kabiri, T. Ayer, J.M. Donohue, M.S. Roberts, "Hepatitis C Disease Burden in the United States in 2015 and Beyond", American Association for the Study of Liver Diseases, The Liver Meeting 2015, San Francisco, CA, November 13-17, 2015.
30. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside, "Role of Adherence in Optimizing Mammography Screening," International Cancer Screening Network (ICSN) Meeting, Rotterdam, The Netherlands, June 2-4, 2015.
31. M. Ozkaynak, T. Ayer, M. Sills, J. Vlachy, Dziadkowiec, "Combining Visualization and Markov Models to Characterize Workflow in Emergency Departments", ISERC 2015, Nashville, TN, May 30-June 2, 2015.
32. J. Chhatwal, T. He, K. Li, M.S. Roberts, T. Ayer, J. J. Grefenstette, A. C. Spaulding, "Predicting the Benefit from Opt-out Hepatitis C Screening in United States Prisons through

- Mathematical Modeling,” Academic & Health Policy Conference on Correctional Health, Boston, MA, March 19-20, 2015.
33. M. Jo, Q. Li, J. Vlachy, T. Ayer, P. Keskinocak, J. Swann, A. Vats, L. Olson, “Continuous Electroencephalography for Seizure Detection in Children: Who should we monitor?” 44th Critical Care Congress, Phoenix, Arizona, January 17-21, 2015.
 34. T. Ayer, M. Ayvaci, Z. Karaca, H.S. Won, J. Vlachy, “Does Health Information Exchange Move Patients Through Emergency Departments Faster?,” Annual Workshop on Health Information and Economics (WHITE), Washington, DC, October 10-11, 2014.
 35. Q. Chen, T. Ayer, J. Chhatwal, “Optimal Surveillance of Hepatocellular Carcinoma for Patients with Hepatitis C: A Societal Perspective,” Health Systems Optimization Workshop, Chicago, IL, September 12-13, 2014.
 36. J. Yan, T. Ayer, P. Keskinocak, “The Optimal Risk Cutoff Values for Down Syndrome Screening Considering Women's Preferences,” Winter Simulation Conference, Savannah, GA, December 7-10, 2014.
 37. A. Bonifonte, T. Ayer, E. Veledar, A. Clarke, P. Wilson, “Role and Importance Of Antecedent Blood Pressure In Predicting Outcomes In Cardiovascular Disease,” High Blood Pressure Research Conference, San Francisco, CA, September 9-12, 2014.
 38. Q. Chen, T. Ayer, J. Chhatwal, “Optimal Surveillance of Hepatocellular Carcinoma for Patients with Hepatitis C: A Societal Perspective,” Production and Operations Management Society (POMS) Conference, Atlanta, GA, May 9-12, 2014.
 39. M. Jo, Q. Li, J. Vlachy, T. Ayer, P. Keskinocak, J. Swann, A. Vats, L. Olson, “Improving Continuous Electroencephalography (cEEG) Monitoring in Pediatric Intensive Care Units (PICU): Whom Should We Monitor and How Long?,” Pediatric Healthcare Innovation Conference, Atlanta, GA, April 21, 2014.
 40. J. Yan, T. Ayer, P. Keskinocak, “Preference-Sensitive Risk Cutoff Values for Prenatal Integrated Screening Test for Down Syndrome,” Pediatric Healthcare Innovation Conference, Atlanta, GA, April 21, 2014.
 41. T. Ayer, P. Keskinocak, J. Yan, “The Effects of Different Risk Cutoff Values on the Effectiveness of Prenatal Screening Strategies for Down Syndrome,” Emory University Pediatric Research Retreat: Common Complex Childhood Diseases, Atlanta, GA, June 28, 2013 (poster presentation).
 42. J. Yan, T. Ayer, P. Keskinocak, “Fetal Loss Rates, Maternal Age Dynamcis and Optimal Risk Cutoff Values for Prenatal Screening Strategies for Down Syndrome,” Emory Pediatrics Innovation Conference, Atlanta, GA, 2013.
 43. T. Ayer, O. Alagoz, N.K. Stout, “Tailored Breast Cancer Screening Policies,” CDC National Cancer Conference, Washington, DC, USA, August 21-23, 2012.
 44. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside, “Behavioral Heterogeneity in Women’s Adherence and Its Role on Optimal Mammography Screening Policies,” MOPTA Conference, Lehigh University, USA, July 30-31, 2012.
 45. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside “Behavioral Heterogeneity in Women’s Adherence and Its Role on Optimal Mammography Screening Policies,” IIE Orlando, FL, USA, May 19-22, 2012.
 46. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside “Behavioral Heterogeneity in Women’s Adherence and Its Role on Optimal Mammography Screening Policies,” Production and Operations Management Society (POMS) Conference, Chicago, IL, April 20-23, 2012.

47. T. Ayer, O. Alagoz, N.K. Stout, E. S. Burnside “Risk-Based Breast Cancer Screening and Diagnosis Policies,” Centers for Disease Control & Prevention, Atlanta, GA, USA, January 11, 2012.
48. T. Ayer, O. Alagoz, N.K. Stout, E.S. Burnside, “Two Missing Factors in Mammography Screening Guidelines: Risk and Adherence,” RSNA Annual Meeting, Chicago, IL, USA, November 27-December 2, 2011.
49. O. Alagoz, T. Ayer, N.K. Stout, “A Mathematical Modeling Framework to Personalize Mammography Screening,” Mayo Clinic Conference on Systems Engineering and Operations Research in Health Care, Rochester, MN, August 19-20, 2010.
50. T. Ayer, O. Alagoz, N.K. Stout, EB Burnside, "Designing a New Breast Cancer Screening Program Considering Imperfect Adherence," Invited Presentation, Workshop on OR for the Public Interest, Stanford, CA, June 17-18, 2010.
51. E. S. Burnside, J. Chhatwal, K. E. Witte, J. Liu, T. Ayer, O. Alagoz, C. D. Page, D. H. Gustafson, “Computational Techniques to Improve the Early Diagnosis of Breast Cancer,” 3rd Annual UWCCC Research Retreat, Madison, WI, January 24, 2009.
52. T. Ayer, J. Chhatwal, O. Alagoz, E. S. Burnside, “Comparison of Artificial Neural Network and Logistic Regression Model for Breast Cancer Risk Prediction,” RSNA Annual Meeting, Chicago, IL, USA, November 30-December 5, 2008.
53. E. S. Burnside, O. Alagoz, D. H. Gustafson, C. D. Page, J. Chhatwal, T. Ayer, J. Liu, K. E. Witte, “Computational Techniques to Improve the Early Diagnosis of Breast Cancer,” 2nd Annual UWCCC Research Retreat, Madison, WI, February 2, 2008.

E. GRANTS AND CONTRACTS (Total Ayer Portion > \$3 million)

E1. As Principal Investigator

1. RTI/NIH, “HEALing Communities Study: Developing and Testing an Integrated Approach to Address the Opioid Crisis”, March 2022-2024 (Role: GT PI, Ayer portion: >\$150K).
2. DHHS/PHS/CDC, “Senior Science Advisor for Chronic Disease Modeling (on-loan through IPA)”, Centers for Disease Control and Prevention (CDC), Total budget: \$45,280; December 2021-December 2022. (Role: PI, Ayer portion: \$45,280, Approximately 25% time for 12 months).
3. NSF Grant (Award No: 2035360, Total budget: \$195,888), “RAPID: Collaborative Research: Mitigation and Suppression of Coronavirus Pandemic with Data-driven RAPID Decisions Using COVID-19 Simulator,” National Science Foundation, July 2020-June 2022 (Role: PI, Ayer Portion: \$92,030).
4. Robert Wood Johnson Foundation (Award No. RJ259, \$120,000), “Health Policy Research Scholars Program”, 2019-2022, (Role: PI, Ayer portion: \$120,000)
5. NSF-NIH Smart and Connected Health (SCH) Grant (Award No: 1722614, Total budget: \$1.2 million), “SCH: INT: Collaborative Research: Smart Intervention Strategies for Hepatitis C Elimination”, National Science Foundation - National Institutes of Health Interagency Initiative: Smart and Connected Health, August 2017- July 2022 (Role: PI, Ayer

portion: \$430,000, collaborative proposal with Harvard Medical School and Emory University Rollins School of Public Health).

6. DHHS/PHS/CDC, “Senior Science Advisor for Chronic Disease Modeling (on-loan through IPA)”, Centers for Disease Control and Prevention (CDC), Total budget: \$36,280; November 2020- December 2021. (Role: PI, Ayer portion: \$36,280, Approximately 20% time for 12 months).
7. NSF CAREER Award (Award No. 1452999, Total budget: \$500,000), “CAREER: Optimal Management of Chronic Diseases Caused by Infections”, National Science Foundation, September 2015-August 2021 (Role: PI, Ayer portion: \$500,000).
8. NSF-NIH Smart and Connected Health (SCH) Grant (NSF Award No. 1601084, Total budget: \$289,569), “SCH: EXP: Smart Adaptive Adherence-Enhancing Intervention Strategies for Breast Cancer Prevention”, National Science Foundation - National Institutes of Health Interagency Initiative: Smart and Connected Health, January 2017-December 2020 (Role: PI, Ayer portion: \$289,569).
9. Georgia Tech - Geisinger Health System Grant Program (Total budget: \$99,932). “Development of an Operational Decision Support Tool for Biologic Pharmaceutical Use in Chronic Disease Management”, 2016-2018 (Role: PI, Ayer Portion: \$46,808).
10. NSF Grant (Award No. 1335137, Total budget: \$360,000), “GOALI: Improving Blood Collection, Production, and Inventory Operations,” National Science Foundation, May 2014-May 2017 (Role: PI, Ayer Portion: \$280,000).
11. Emory University – Department of Neurology (Total budget: \$50,000), “Continuous ICU Electroencephalography Monitoring: Prediction Models for Improving Outcomes and Cost Effectiveness,” 2015 – 2017 (Role: PI, Ayer portion: \$50,000).
12. NIH Health Innovation Program via ACTSI Grant (Total budget: \$25, 000), “Next generation prognostic models for patients with lymphoma”, July 2015-2016 (Role: PI, Ayer Portion: \$21,000)
13. George Family Foundation Seed Grant (Total budget: \$10,000), “Optimizing Screening for Critical Congenital Heart Disease,” March 2015-2016, (Role: PI, Ayer portion: \$10,000).
14. Emory University – CORPH, Children’s Healthcare of Atlanta, and Georgia Tech (Total budget: \$50,000), “Optimization of the algorithms for screening for critical congenital heart disease,” 2014 – 2015 (Role: PI, Ayer Portion: \$43,000).
15. George Family Foundation Seed Grant (Total budget: \$5,000), “Optimal Policies for Hepatocellular Carcinoma Surveillance,” March 2014-2015, (Role: PI).
16. George Family Foundation Seed Grant (Total budget: \$5,000), “Sequential Blood Pressure Change-point Detection,” March 2014-2015, (Role: PI).

17. George Family Foundation Seed Grant (Total budget: \$5,000), “Considering Women's Preferences in Down Syndrome Screening,” March 2014-2015, (Role: PI).

E2. As Co-Principal Investigator

18. Rockefeller Foundation, COVID-19 Modeling Accelerator Funding (Total Budget: \$99,970), “COVID-19 Simulator: Simulation Modeling to End the COVID-19 Pandemic”, April 2021- March 2022 (Role Co-PI, Ayer Portion: \$40,985).
19. Gilead Sciences (Award No. IN-US-337-1856, Total Budget: \$231,103, “Hepatitis C Prevention in Society Because of Treatment in United States Prisons”, Feb 2019- Feb 2020 (Role: Co-PI, Ayer Portion: \$40,697).
20. Merck (Total budget: \$350K) “Strategies for Management of Hepatitis C Virus: A Global Optimization Tool”, Jan 2018- Jan 2020, (Role: Co-PI, Ayer portion: \$105,814).

E3. As Senior Personnel or Contributor

21. Burroughs Wellcome Fund (Total budget: \$650K), “Microsimulation modeling to evaluate the clinical effectiveness of novel cancer therapies”, 2017-2020 (Role: Senior Personnel, Ayer Portion: \$192,000)

F. OTHER SCHOLARLY AND CREATIVE ACCOMPLISHMENTS

- Ayer and co-authors developed online, publicly available, interactive COVID-19 planning tools that have been used by State Departments of Public Health, State Senators Offices, and have been widely covered by media and accessed 300-1000 times daily since launch in March 2020: www.covid19sim.org
- Ayer and co-authors developed an alternative blood collection model and software which was implemented by the American Red Cross. A video synopsis produced by the American Red Cross to highlight the realized impact can be found here: <https://vimeo.com/206581123/72c76ad3dd>
- Ayer and co-authors developed a Hepatitis C treatment prioritization tool for use by state prison systems, details of which are provided in IV.B1.12
- Ayer and co-authors developed an online, publicly available *Hepatitis C Elimination Tool*, which aims to provide guidance on how HCV elimination targets can be achieved in a given region or country and what is the cost of eliminating HCV: <http://www.hepcelimtool.org/>
- Ayer and co-authors developed a Medical Surplus Resource Allocation Tool, details of which are provided in IV.B1.6

G. SOCIETAL AND POLICY IMPACTS

G1. Impact in Practice

- Ayer and co-authors developed online, publicly available, interactive COVID-19 planning tools that have been used by State Departments of Public Health, State Senators Offices, and have been widely covered by media and accessed 300-1000 times daily since launch in March 2020: www.covid19sim.org
- Ayer and co-authors developed an alternative blood collection model which was implemented by the American Red Cross. The implementation of the proposed solution resulted in an approximately 40 percent reduction in the per unit collection cost for cryoprecipitate, a blood product with a tight collection-to-processing time constraint. A video synopsis produced by the American Red Cross to highlight the realized impact can be found here: <https://vimeo.com/206581123/72c76ad3dd>
- Ayer and co-authors published a study on the value-based pricing of lung cancer drugs, which provided additional evidence for the final disapproval decision of this drug in the UK. For more details, please see: <http://www.fiercepharma.com/pharma/eli-lilly-s-portrazza-turned-away-final-nice-guidance>

G2. Press/media Coverage of Research

- COVID-19
 - Fox News, [No significant coronavirus community spread during NFL, NCAA seasons, study finds](#)
 - MSNBC's Rachel Maddow Show: [Episode Aired April 29, 2020 - minute 34](#)
 - NPR Planet Money: [Episode 997: Georgia's Open Question](#)
 - GPB (Georgia Public Broadcasting): [Georgia Tech Researchers' New Model Shows Impact Of Social Distancing On COVID19 Spread In Georgia](#)
 - WSB Atlanta: [New research model predicts second COVID-19 wave in Georgia](#)
 - 11Alive: [COVID-19 simulator sees a second wave of cases in Georgia based on easing restrictions](#)
 - Patch.com: [Model Projects 23K GA Deaths If Coronavirus Limits End In 4 Weeks](#)
- Value-based pricing of cancer treatment drugs
 - Washington Post: Cancer drugs aren't just really expensive; they're a bad value drugs aren't just really expensive; they're a bad value - See more at: <https://www.washingtonpost.com/news/wonk/wp/2015/08/27/cancer-drugs-arent-just-really-expensive-theyre-a-bad-value/>
 - The Wall Street Journal Coverage I: Lilly's Lung-Cancer Drug Portrazza to Cost \$11,430 a Month - See more at: <http://www.wsj.com/articles/lillys-lung-cancer-drug-portrazza-to-cost-11-430-a-month-1449867424>
 - The Wall Street Journal Coverage II: Experimental Lilly Lung-Cancer Drug Stirs Price Debate - See more at: <http://www.wsj.com/articles/unapproved-lilly-lung-cancer-drug-stirs-price-debate-1440687723>

- Cancer Network: Cost of CLL Management Expected to Skyrocket – See more at: <http://www.cancernetwork.com/hematologic-malignancies/cost-ctl-management-expected-skyrocket>
- The Economic Times: Targeted therapy drugs could radically increase the cost of leukemia treatment – See more at: <http://health.economictimes.indiatimes.com/news/industry/targeted-therapy- drugs-could-radically-increase-the-cost-of-leukemia-treatment/55505495>
- Hepatitis C treatment in US prisons and jails
 - NPR: Treating Prisoners With Hepatitis C May Be Worth The Hefty Price - See more at: <http://www.npr.org/sections/health-shots/2015/11/23/457145471/treating-prisoners-with-hepatitis-c-may-be-worth-the-hefty-price>
 - US News: Screening Inmates for Hepatitis C Benefits General Community - See more at: <http://health.usnews.com/health-news/articles/2015/11/23/screening-inmates-for-hepatitis-c-benefits-general-community-study>
 - INFORMS, Resoundingly Human, <https://informs.libsyn.com/resoundingly-human-february-2019>
- High Cost, Minimal Benefit for Bevacizumab in Metastatic Colorectal Cancer
 - Cancer Network: <http://www.cancernetwork.com/colorectal-cancer/high-cost-minimal-benefit-bevacizumab-metastatic-crc#sthash.P22BJbw5.dpuf>
- Maintenance And Consolidation Therapies: Cost-Effective Strategies To Prolong Remission In Patients With Follicular Lymphoma
 - ISPOR News and Press: <http://press.ispor.org/index.php/maintenance-and-consolidation-therapies-cost-effective-strategies-to-prolong-remission-in-patients->
- Reconsider the Mammogram
 - Slate Magazine http://www.slate.com/articles/double_x/doublex/2013/08/mammograms_the_right_way_to_use_them.html
 - Daily Herald <http://www.dailyherald.com/article/20130809/entlife/708099955/print/>
 - Chicago Tribune <http://www.chicagotribune.com/news/plus/chi-wp-slate-reconsider-mammogram,0,3708527.story>

H. OTHER PROFESSIONAL ACTIVITIES

Consulting Experience

- Gilead Sciences, 2017.
- MD Anderson Cancer Center, Houston, TX, 2014.

V. EDUCATION

A. COURSES TAUGHT

| Semester, Year | Course Number | Course Title | Number of Students |
|----------------|---------------|---|--------------------|
| Spring, 2021 | ISyE 4106 | Senior Design | 30 |
| Fall, 2020 | HS 6000 | Healthcare Delivery | 11 |
| Fall, 2020 | MSCR 598* | Big Data to Knowledge | 32 |
| Fall, 2019 | HS 6000 | Healthcare Delivery | 16 |
| Fall, 2019 | MSCR 598* | Big Data to Knowledge | 23 |
| Summer, 2019 | ISyE 2027 | Probability with Applications | 27 |
| Fall, 2018 | HS 6000 | Healthcare Delivery | 13 |
| Summer, 2018 | ISyE 3770 | Statistics and Applications | 34 |
| Summer, 2018 | ISyE 4803 | Healthcare Systems Engineering | 15 |
| Spring, 2018 | HS 6400 | Health Systems Practice | 15 |
| Fall, 2017 | HS 6000 | Healthcare Delivery | 10 |
| Summer, 2017 | MGT 8803 | Management of Healthcare Enterprises (MBA Course) | 25 |
| Spring, 2017 | ISyE 4803 | Healthcare Systems Engineering | 15 |
| Fall, 2016 | HS 6000 | Healthcare Delivery | 16 |
| Spring, 2015 | ISyE 4106 | Senior Design | 5 |
| Spring, 2015 | HS 6400 | Health Systems Practice | 17 |
| Fall, 2015 | HS 6000 | Intro to Healthcare Delivery | 8 |

* taught at Emory Medical School

B. INDIVIDUAL STUDENT GUIDANCE

B1. Ph.D. Students

B1. a. Graduated

1. Zhaowei She
 - a) Advisement began in Fall 2015, graduated in 2021.
 - b) Passed Ph.D. Comprehensive exams in OR Track in Fall 2016
 - c) Dissertation Title: Healthcare Data Analytics for Social Good
 - d) Health Systems Institute George Fellowship for academic performance and leadership, 2014.
 - e) Finalist, 2019 MSOM Student Paper Competition.
 - f) Primary Funding Source: NSF.
 - g) Planned graduation date: Fall 2021
 - h) First position: Assistant Professor at Singapore Management University Lee Kong Chian School of Business.

2. Jan Vlachy
 - a) Graduated in 2021.
 - b) Passed Ph.D. Comprehensive exams in Operations Research Track in Fall 2013.
 - c) Dissertation Title: Data-driven Healthcare in Emerging Directions: Health Information Exchanges, New Payment Models, and Patient Workflow

- Optimization
- d) Health Systems Institute George Fellowship for academic performance and leadership, 2014.
 - e) First position: Data Scientist, Google Inc.
3. Caglar Caglayan
 - a) Advisement began in Fall 2013, graduated in 2019
 - b) Passed Ph.D. Comprehensive exams in OR Track in Fall 2014
 - c) Dissertation Title: Analytics Approaches to Improve Strategic, Operational, and Clinical Decision-Making in Healthcare
 - d) First Position: Assistant Professor at Clemson University, Industrial Engineering Department.
 4. Can Zhang (co-advised with Chip White)
 - a) Advisement began in Fall 2013, graduated in 2018.
 - b) Passed Ph.D. Comprehensive exams in EDA Track in Spring 2014.
 - c) Dissertation Title: Essays on Socially Responsible Operations
 - d) Honorable Mention, INFORMS Dantzig Dissertation Award, 2019
 - e) Finalist in INFORMS Nicholson Student Paper Competition, 2015.
 - f) First Prize, POMS College of Sustainable Operations Best Student Paper Competition, 2017
 - g) Honorable mention for the ISyE Jarvis Award, 2017
 - h) First Position: Assistant Professor at Duke University Fuqua School of Business.
 5. Anthony Bonifonte
 - a) Advisement began in Fall 2012, graduated in 2018.
 - b) Passed Ph.D. Comprehensive exams in Operations Research Track in Fall 2012.
 - c) Dissertation Title: Models and Analysis for Optimal Real Time Blood Pressure Monitoring and Control
 - d) Health Systems Institute George Fellowship for academic performance and leadership, 2013.
 - e) First position: Assistant Professor at Denison University, Data Analytics Department.
 6. Qiushi Chen
 - a) Advisement began in Spring 2012, graduated in 2016.
 - b) Dissertation Title: Cost-Effective Management of Chronic Diseases: Surveillance, Treatment, and Elimination
 - c) Health Systems Institute George Fellowship for academic performance and leadership, 2012.
 - d) INFORMS Decision Analysis Society Best Student Paper Award recipient, 2016.
 - e) First position: Assistant Professor at Penn State University Industrial Engineering Department.
 7. Chenxi Zeng (co-advised with Chip White)

- a) Advisement began in 2012, graduated in 2016.
 - b) Dissertation Title: A minimum cost and risk mitigation approach for blood collection
 - c) 2013 Georgia Tech Research and Innovation Conference (GTRIC) fellowship recipient
 - d) 2015 INFORMS Doing Good with Good OR Award recipient
 - e) First position: Data Scientist, Amazon Inc.
8. Jia Yan (co-advised with Pinar Keskinocak)
- a) Advisement began in Spring 2013, graduated in Fall 2017.
 - b) Passed Ph.D. Comprehensive exams in Operations Research Track in Spring 2014.
 - c) Dissertation Title: Personalized Down Syndrome Screening and Diagnosis Strategies
 - d) First position: Data Scientist, Lyft.

B1. b. In Process

9. Andrew ElHabr
- a) Advisement began in Fall 2017
 - b) Passed Ph.D. Comprehensive exams in OR Track in Fall 2018
 - c) Tentative Dissertation Title: Outcome-based Contracts in Pharmaceutical Industry
 - d) Primary Funding Source: NSF.
10. Jovan Julien
- a) Advisement began in Fall 2018
 - b) Passed Ph.D. Comprehensive exams in Stats in Fall 2019
 - c) Tentative Dissertation Title: Health Outcomes and Economics Modeling for Chronic Diseases
 - d) Elected as the Society for Medical Decision-Making Lee Lusted Awardee
 - e) Primary Funding Source: RWJF
11. Cyrus Rich
- a) Advisement began in Fall 2018
 - b) Passed Ph.D. Comprehensive exams in OR Track in Fall 2019
 - c) Tentative Dissertation Title: The Impact of Public Reporting on Health Outcomes: An Empirical Investigation
 - d) Primary Funding Source: Faculty Startup
12. Austin McCandlish
- a) Advisement began in Fall 2019
 - b) Passed Ph.D. Comprehensive exams in Stats in Fall 2019
 - c) Tentative Dissertation Title: TBD
 - d) Primary Funding Source: NSF.

13. Zilong Wang
 - a) Advisement began in Fall 2019
 - b) Passed Ph.D. Comprehensive exams in OR Track in Fall 2019
 - c) Tentative Dissertation Title: TBD
 - d) Primary Funding Source: Singapore A Star Scholarship

14. Jade Xiao
 - a) Advisement began in Spring 2020
 - b) Tentative Dissertation Title: TBD
 - c) Primary Funding Source: NSF

B2. M.S. Students

B2.a. Graduated M.S. Non-thesis

1. Wen Chen, Master's Student in Health Systems (Spring 2016-2017)
2. Damon Frezza, Master's Student in OR (Spring 2016)
3. Mahadevan Vaidyanathan, Master's Student in IE (Spring 2016-present)
4. Darshini Nanavati, Master's Student in Health Systems (Spring 2016)
5. Jane Wang, Master's Student in Health Systems (Spring 2014-2015)
6. Ruizhi Wang, Master's Student in IE (Spring 2012)
7. Luke Wang, Master's Student in IE (Summer 2013, Fall 2013)
8. Justin Huff, Master's Student in Health Systems (Summer 2013, Fall 2013)
9. Shwetha Devanagondi, Master's Student in Health Systems (Summer 2013, Fall 2013)
10. Kirthana Hampapur, Master's Student in OR (Spring 2017-Spring 2018)

B3. Undergraduate Students

1. Ijeabalum Okafor, NSF Summer Undergraduate Research in Engineering/Sciences (S.U.R.E.), Summer 2016
2. Diem "Dineise" Tran, Fall 2015-present
3. Simon Chow, undergraduate student (Spring 2013-2015)
4. Allison Clark, visiting undergraduate student from Texas Lutheran University under NSF S.U.R.E. program (Summer 2012)
5. Wesley Marrero, visiting undergraduate student from Universidad del Turabo at Gurabo, Puerto Rico under NSF S.U.R.E. program (Summer 2013)

B4. Service on thesis or dissertation committees Internal

1. Pravara Harati, Advisor: Nicoleta Serban
2. Yanling Chan, graduated in 2015, Advisors: Alan Erera, Chip Chite, ISyE.
3. Isil Alev, graduated in 2015, Advisors: Atalay Atasu, Ozlem Ergun, Beril Toktay, ISyE.
4. Monica Villarel, graduated in 2014, Advisor: Pinar Keskinocak, ISyE.
5. Pengyi Shi, graduated in 2013, Advisors: Jim Dai & Pinar Keskinocak, ISyE.
6. Jacqueline Griffin, graduated in 2012, Advisor: Pinar Keskinocak, ISyE.
7. Hannah Smalley, graduated in 2012, Advisor: Pinar Keskinocak, ISyE.

B5. Mentorship of postdoctoral fellows

1. Sumeyye Samur, 2015-2016, first position: Health Economist at Institute for Clinical and Economic Review.
2. Hoon Jang, 2016-2017, First Position: Assistant Professor, Korea University.
3. Selin Merdan, 2017-2019, first position: Data Scientist at Value Analytics Labs

C. EDUCATIONAL INNOVATIONS AND OTHER CONTRIBUTIONS

C1. Course Development

- Co-developed a new undergraduate course, ISyE 4803 – Health Systems Engineering: this course is intended for preparing undergraduate students for a professional career in healthcare industry. Healthcare is the largest industry, yet; ISyE did not have a healthcare-focused course in its undergraduate program. In this new course, students learn about the healthcare systems, various stakeholders, incentive misalignments, grand challenges, and potential applications of Industrial Engineering and Operations Research/ Analytics in healthcare.

C2. Course Improvement

- Completely redesigned HS 6000 – Introduction to Healthcare Delivery (a core course for the MS HS program). In addition to regular classroom teaching activities, the students are actively participating in real healthcare projects in collaborations with the medical organizations in Atlanta area (past collaborators include Winship Cancer Institute, Emory University Hospital, Shepherd Center, and Perkins Will).

C3. Professional Development/Continuing Education

- Course Developer, organizer, and instructor for the short course on “Clinical Applications of Artificial Neural Networks,” Society for Medical Decision Making (SMDM) Annual Meeting (intended audience: medical professionals such as medical doctors and health policy researchers).

VI. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

A1. Editorial Board Memberships

- Associate Editor
 - *Operations Research*, 2017-
 - *Management Science*, 2018-
 - *MSOM*, 2019-
 - *MSOM (Practice-Based Research Competition)*, 2018-
 - *Naval Research Logistics*, 2019-

A2. Society Offices, Activities, and Membership

A2.1. Institute for Operations Research and Management Science (INFORMS)

- Health Applications Society (HAS), 800+ members society, the second largest society within INFORMS
 - *President*, 2016-2017
 - *Vice President (President-Elect)*, 2015-2016
 - *Treasurer*, Health Applications Society, 2013-2015.
 - *Judge*, HAS Student Paper Competition (2013, 2015, 2017)
 - *Co-Chair*, INFORMS Doing Good with Good OR Paper Competition, 2017.

A2.2. Society for Medical Decision Making (SMDM)

- *Short Course Instructor*, 2011-2013.
 - taught short courses on analytics to mainly medical doctors
- Member, 2008-present

A3. Organization and Chairmanship of Technical Sessions, Workshops and Conferences

- Cluster Chair, Area: COVID-19 Epidemiological, Health Economics, and Outcomes Modeling, INFORMS Healthcare, 2021
- Co-Chair, MSOM Practice-Based Research Competition, 2021
- Cluster Chair, Area: Public Health and Health Policy, INFORMS Healthcare, 2019
- Program Committee Member, ML4H: Machine Learning for Health Workshop at NIPS, 2018-
- MSOM Healthcare SIG Conference Co-Chair, 2018
- MSOM Practice-Focused Research Competition, Academic Committee Member, 2019-
- INFORMS HAS Cluster Chair, 2013, 2015
- Organized 60+ healthcare focused conference sessions in HAS cluster
- Organizing Committee Member and Stream Chair, Healthcare Analytics, INFORMS Computing Society (ICS) Conference, 2017
- Organizing Committee Member, INFORMS Healthcare Conference, 2013.
- Management Committee Member, 8th INFORMS Workshop on Data Mining and Health Informatics, 2014.
- Program Committee Member, Global Joint Conference on Industrial Engineering and Its Application Areas, 2016.
- Organizing Committee Member, Health Systems Optimization Workshop, Northwestern University, 2014.
- Program Committee Member, Global Conference On Healthcare Systems Engineering (Gchse) 2014.
- Program Committee Member, International Conference on Health Informatics, 2014.
- Program Committee Member, YAEM (Turkish INFORMS) Conference, 2014.
- Session Chair, IFORS Conference, 2014.
- Stream Chair, Health Applications, MOPTA Conference, Lehigh University, 2012.
- Session Chair, INFORMS Annual Meetings, 2010- present.
- Session Chair, Production and Operations Management Society Conference, 2012-15

A4. Technical Journal or Conference Referee Activities

- Judge roles at INFORMS Competitions
 - George B. Dantzing Dissertation Award (2019-2022)
 - INFORMS Health Applications Society Student Paper Competition (2021, 2018)
 - POM, College of Healthcare Operations (CHOM) Paper Competition (2021)
 - Nicholson Student Paper Competition (2018-2020)
 - JFIG Paper Competition (2018)
 - INFORMS Doing Good with Good OR Competition (2016, 2017, 2018)
 - MSOM Healthcare SIG (2016, 2017)

- Pierskalla Best Paper Competition (2013, 2014)
- Decision Analysis Society Student Paper Competition (2013)
- INFORMS Interactive Session Competition (2011- 2013)
- Canadian Operations Research Society (CORS)/INFORMS Student Paper
- *Judge*, College of Healthcare Operations Management Best Paper Competition, 2012, 2014, 2015.
- *Reviewer*, Society of Medical Decision Making Annual Meetings, 2011-
- *Reviewer*, ISERC Annual Meeting, 2012.
- Referee for *Operations Research, Management Science, MSOM, Productions and Operations Management, Decision Analysis, IEE Transactions, IEE Transactions on Healthcare Systems Engineering, Medical Decision Making, Health Care Management Science, Wiley Series in Operations Research and Management Science, Radiology, Cancer, Value in Health, Socio-Economic Planning Science, British Journal of Cancers, The Pharmacogenomics*

A5. Proposal Panels and Reviews [participated over 8 panels since 2021]

- Israel Science Foundation, 2019
- The Netherlands Organisation for Scientific Research (NWO), 2015
- National Science Foundation, 2012-present

A6. Other Involvement

- Editor-in-Chief Search Committee, INFORMS *TutORials* Journal, 2017
- Committee Member, INFORMS Finance Committee, 2016-

B. PUBLIC AND COMMUNITY SERVICE

No data.

C. INSTITUTE CONTRIBUTIONS

C1. Institute Committee Service

- Faculty Advisor, Society for Health Systems at Georgia Tech, 2021-

C2. College Committee Service

- College of Engineering, Strategic Planning Committee, Member, 2023-
- College of Engineering, RPT College Committee, Member, 2023-
- College of Engineering, Strategic Planning Committee, Member, 2018-2019

C3. School Committee Service

- ISyE Named Post-docs Search Committee, Member, 2024-
- Diversity, Equity, and Inclusion (DEI) Committee, Member 2023-2026
- Awards Committee, Member, 2021-23
- RPT Area Committee, Member, 2023
- Mentoring Committee, Member, 2019-2023
- Comprehensive Exams Committee, 2023-
- George Family Fellowship Committee, 2023-
- IT Committee, Member, 2020-2022

- Graduate Committee, Member, 2016-2018
- Ph.D. Admissions Committee, Member, 2016-2018
- ISyE Distinguished Scholarship Lecture Host Committee, Member, 2015, 2016
- Search Committee Member for the George Chair, ISyE, GaTech, 2011-2014
- Host for several faculty candidates, 2011-

C4. Program Development: Research

- Research Director, Business Intelligence and Healthcare Analytics, Center for Health and Humanitarian Systems (IRI), 2018—

C5. Program Development: Academic

- Member, ISyE Public Health Minor Program Development Initiative, 2020—
- Faculty Advisor, Society for Health Systems, Georgia Tech Chapter

C6. Other Institute Service Contributions

- Organizer, NSF OE Program Director visit to Georgia Tech, 2017
- Organizer, NSF SES/MES Program Director visit to Georgia Tech, 2016