

MARIEL S. LAVIERI

Department of Industrial and Operations Engineering
The University of Michigan, Ann Arbor, MI 48109-2117
Phone: (734)647-0872 • E-mail: lavieri@umich.edu

ACADEMIC APPOINTMENT

THE UNIVERSITY OF MICHIGAN, Industrial and Operations Engineering, College of Engineering
Associate Professor September 2016 –
Assistant Professor January 2010 – August 2016
Visiting Scholar November 2009 – December 2009

RESEARCH INTERESTS

Applications of Operations Research to Healthcare

Medical Decision Making: Disease Modeling; Treatment Decisions; Outcomes Measurement; Screening and Monitoring Rules

Policy and Operations: Health Workforce Planning; Patient Flow Modeling; Training; Attrition; Capacity Planning; Promotion Rules; Learning; Nursing; Global Health; Resource Allocation, Hospital Readmissions

Methodology

Dynamic Programming; Stochastic Control; Partially Observable State Space Models (including Kalman Filter); Applied Statistics; Bayesian Updating; Optimization; Linear Programming

EDUCATION

PhD in Management Science

Sauder School of Business - University of British Columbia, Vancouver, BC (2004-2009)

Advisor: Dr. Martin L. Puterman

Dissertation Title: Nursing Workforce Planning and Radiation Therapy Treatment Decision Making: Two Healthcare Operations Research Applications

Master of Management Science

Canadian Operational Research Society Diploma in Operational Research

Sauder School of Business - University of British Columbia, Vancouver, BC (2002-2004)

Advisor: Dr. Martin L. Puterman

Dissertation Title: An LP Based Distribution Network Planning Tool for a Large Pulp and Paper Company

Bachelor of Science

Industrial and Systems Engineering Major, Contrabass Performance Minor; *Summa Cum Laude*
University of Florida, Gainesville, Florida (1997-2002)

Bachelor of Arts

Statistics Major; *Summa Cum Laude*

University of Florida, Gainesville, Florida (1997-2002)

TEACHING EXPERIENCE

UNIVERSITY OF MICHIGAN (Ann Arbor, Michigan)

New courses developed/modified

IOE 316: Introduction to Markov Processes: This course has been drastically modified to convert it from a half-semester course to a full-semester course. The expanded course includes new materials such as: further details on queueing networks and an introduction to Markov Decision Processes.

IOE 513: Seminar in Health Care Operations Research: The purpose of this course is to provide students with an overview of some of the many applications of operations research in healthcare and to motivate students to contribute to this growing literature. It surveys and evaluates research done in this field and addresses some of the technical issues encountered when developing healthcare operations research models.

Courses taught at U of M

Course #	Course title	Teaching Role	Term	Q1	Q2	Q4	Responses
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 16	4.12	4.46	3.79	111/115
IOE 513	<i>Healthcare Oper Res</i>	Instructor	Winter 16	4.56	4.67	4.67	15/22
IOE 316	<i>Intr Markov Proc</i>	Instructor	Winter 16	4.55	4.53	4.19	89/95
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 15	4.71	4.75	4.15	107/109
IOE 440	<i>Op. Analysis and Mgmt</i>	Instructor	Fall 15	4.33	4.39	4.22	69/81
IOE 513	<i>Healthcare Oper Res</i>	Instructor	Winter 15	4.06	4.58	4.13	11/20
IOE 316	<i>Intr Markov Proc</i>	Instructor	Winter 15	4.34	4.41	4.06	118/127
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 14	4.17	4.18	3.92	113/123
IOE 440	<i>Op. Analysis and Mgmt</i>	Instructor	Fall 14	3.97	4.19	4.09	72/79
IOE 513	<i>Healthcare Oper Res</i>	Instructor	Winter 14	3.90	4.50	4.00	6/14
IOE 316	<i>Intr Markov Proc</i>	Instructor	Winter 14	4.35	4.36	4.10	118/127
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 13	4.13	4.12	3.78	104/117
IOE 440	<i>Op. Analysis and Mgmt</i>	Instructor	Fall 13	4.20	4.19	4.35	72/87
IOE 316	<i>Intr Markov Proc</i>	Instructor	Winter 13	4.13	4.18	3.75	103/115
IOE 513	<i>Healthcare Oper Res</i>	Instructor	Fall 12	4.25	4.33	4.63	7/9
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 12	3.99	3.96	3.53	115/122
IOE 316	<i>Intr Markov Proc</i>	Instructor	Winter 12	4.33	4.38	3.90	96/115
IOE 591	<i>Healthcare Oper Res</i>	Instructor	Fall 11	4.38	4.20	4.33	7/9
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 11	3.53	3.24	3.61	110/133
IOE 316	<i>Intr Markov Proc</i>	Instructor	Winter 11	3.86	3.87	3.59	85/96
IOE 899	<i>IOE Seminar</i>	Instructor	Winter 11	4.50	4.00	4.00	2/2
IOE 591	<i>Healthcare Oper Res</i>	Instructor	Fall 10	4.20	3.88	5.00	7/8
IOE 316	<i>Intr Markov Proc</i>	Instructor	Fall 10	3.91	3.86	3.60	85/112
IOE 899	<i>IOE Seminar</i>	Instructor	Fall 10	4.00	4.00	4.50	2/5

Ph.D. committees Chaired/co-chaired

Completed:

- Gregory Schell, May 2015, “Personalized Medicine in Optimal Chronic Disease Management.” Chair. (Current position: Research Analyst in the Resource Analysis Division at CNA). Awards: 2012 Doing Good With Good OR, First Prize; 2013 Lee Lusted Award for Quantitative Methods and Theoretical Developments, Finalist; 2013 Lee Lusted Award for Quantitative Methods and Theoretical Developments, First Prize; 2015 IBM Service Science Best Student Paper Award, First Prize.
- Elliot Lee, December 2016, “Management of a Chronically Ill Population: An Operations Approach to Liver Cancer Screening.” Chair. (Current position: Research Analyst in the Resource Analysis Division at CNA). Awards: 2012 NSF Graduate Research Fellowship; 2012 University of Michigan Bonder Scholar

Ongoing:

- Xiang Liu, Anticipated graduation: May 2019, “Applying Operations Research to Improve disease Screening and Monitoring: Optimizing Multiple Testing Modalities, Incorporating Patients’ Adherence, and Utilizing Patients’ Self-examination.” Chair. Awards: Honorable Mention, INFORMS Section on Public Program, Services and Needs Best Paper Competition, 2013
- Gian-Gabriel Garcia, Anticipated graduation: May 2020, “Modeling the Role of Self-Reporting in Concussion Return-to-Play Decisions.” Advisor. Awards: 2017 NSF Graduate Research Fellowship; 2017 and 2016 Honorable Mention, National Academies of Sciences, Engineering, and Medicine Ford Foundation Fellowship; Winter 2017 Graduate Student Instructor of the Semester Award
- Wesley Marrero-Colon, Anticipated graduation: May 2020, “Data Driven Decisions in Healthcare.” Advisor. Awards: 2015 Minority Issues Forum Student Poster Competition, Honorable Mention; 2017 NSF Graduate Research Fellowship; 2017 Michigan Student Symposium for Interdisciplinary Statistical Sciences Best Poster Award

Other Ph.D. students for whom significant guidance has been provided:

- Jonathan E. Helm – Industrial and Operations Engineering, Current position: Kelley School of Business, Indiana University. Awards: 2012 Doing Good With Good OR, First Prize; 2013 Lee Lusted Award for Quantitative Methods and Theoretical Developments, First Prize
- Pooyan Kazemian – Industrial and Operations Engineering, Anticipated graduation: May 2016. Awards: 2013 Bonder Scholarship for Applied Operations Research in Health Services, First Prize; 2014 INFORMS Annual Meeting Decision Analysis Society Practice Award, Finalist; 2015 Murty Price for the Best Research Paper on Optimization, First Prize; 2015-2016 Rackham Graduate School Predoctoral Fellowship; 2015 IBM Service Science Best Student Paper Award, Finalist; 2016 Production and Operations Management Society College of Healthcare Operations Management, Best Paper Award ; 2016 George B. Dantzig Dissertation Award, Second Prize.
- Weihong Hu – H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Current student. Awards: 2013 Public Programs, Service and Needs Paper Competition, Honorary Mention.

Doctoral committee member:

- Lauren Steimle – Industrial and Operations Engineering, Current student
- Donald Richardson – Industrial and Operations Engineering, Current student

- Christine Barnett – Industrial and Operations Engineering, May 2017
- Chate Eamrunroj – Industrial and Operations Engineering, December 2016
- Pooyan Kazemian – Industrial and Operations Engineering, May 2016
- Xi Gu – Mechanical Engineering, December 2015
- Jivan Deglise-Favre-Hawkinson – Industrial and Operations Engineering, August 2015
- Alexander Van Esbroeck – Computer Science and Engineering, May 2015
- Amir Sadrpour – Industrial and Operations Engineering, December 2013
- Chien-Chih You – Electrical Engineering, June 2012

Post-doctoral mentorship:

- Gabriel Zayas Caban, 2014-2016, “Efficiency of Interhospital Transfer of Children in Respiratory Failure”

M.S. students advised/co-advised:

- Xiang Li, 2015, “Strategic Workforce Planning”
- Yongcai Xu, 2015, “Projection of Organ Donors”, Current Status: Ernst & Young Consultant
- Luke Bruski, 2015, “Understanding of Pediatric ICU Transfers”, Current Status: GE Healthcare in the Operations Management Leadership Program
- Kaiyue Zheng, 2013, “Validation of Estimation Model of the Time and Value of Neoadjuvant Prostate-Specific Antigen Nadir”, Current status: PhD student, Industrial and Systems Engineering at the University of Wisconsin-Madison
- Ming Liu, 2012, “Modeling Screening of Hepatocellular Carcinoma through Markov Decision Models”, Current status: PhD student, University of Maryland
- Jingnan Wang, 2011, “Application of TNT Algorithm to Guide Monitoring of Glaucoma Patients”, Current status: Operations Research Analyst, Reddwerks Corporation
- Valerie Chase, 2011, “Predicting Emergency Department Volume using Forecasting Methods to Create a “Surge Response” for Non-Crisis Events”, Current position: Industrial Engineer, Systems Redesign, VA Ann Arbor Healthcare System
- Luying Wang, 2010, “Resource Allocation: The Trade-off Between Treatment and Prevention”, Current position: Financial Business Analyst, PIMCO, Pursuing MBA at University of Chicago
- Yedan Yin, 2010, “Understanding Emergency Department Crowding”, Current position: Nexteer Automotive

Undergraduate/medical students advised:

September 2016 – present

- Tudor Borza, medical fellow
- Ricardo Cummings, Eng Freshman
- Jhawan Davis, IOE Sophomore
- Rayka Devaprasad, Eng Freshman
- Nathan Estes, IOE Senior
- Sarah Finley, IOE Junior

- Chun He, IOE Junior
- Shivani Joshi, Eng Sophomore
- Peter Kirk, Pre-med
- Benjamin Li, Neuroscience/Pre-med
- Elizabeth Lobaza, IOE Junior
- Anavir Shermon, IOE Senior
- Jinyuan Wang, IOE Senior
- Zhitong Xie, IOE Junior
- Zhining Zhou, IOE Junior

September 2015 – August 2016

- Jhawan Davis, Eng Freshman
- Tudor Borza, medical fellow
- Menghan Chen, IOE Senior
- Sarah Finley, IOE Sophomore
- Benjamin Li, Neuroscience/Pre-med
- Blake Ryan, Pre-med
- Anavir Shermon, IOE Junior
- Justin Steuer, IOE Junior
- Jinyuan Wang, IOE Junior

September 2014 – August 2015

- Menghan Chen, IOE Junior
- Valerie Washington, SROP student
- Jason Benedict, Eng Senior
- Alexander Goldstein, Eng Freshman
- Filip Jankovic, IOE Junior
- Yang Li, IOE Senior
- Manqi Li, IOE Senior
- Monique Manners, IOE Junior
- Ashwath Sekaran, IOE Senior
- Kelly Wojcik, IOE Senior
- Kedi Wu, IOE Senior
- Alexandra Zalewski, Eng Sophomore
- Alexander Helfand, Medical Fellow
- Naveen Krishnan, Medical Student
- Benjamin Li, Neuroscience/Pre-med

September 2013 – August 2014

- Julien Brathwaite, IOE Sophomore
- Sam Devaprasad, Eng Sophomore
- Michael Hu, Dual Major Eng and Mathematics
- Filip Jankovic, IOE Sophomore
- Manqi Li, IOE Junior
- Xiang Li, IOE Senior

- Jianyu Liu, IOE Junior
- Monique Manners, LS&A Junior
- Kunal Sanghani, IOE Senior
- Ashwath Sekaran, IOE Junior
- Kedi Wu, IOE Junior
- Yongcai Xu, IOE Senior
- Han Lin Yeo, IOE Senior
- Alexandra Zalewski, Eng Freshman

September 2012 – August 2013

- Julien Brathwaite, IOE Freshman
- Sam Devaprasad, Eng Freshman
- Filip Jankovic, IOE Freshman
- Michael Hu, Dual Major Eng and Mathematics
- Xiang Li, IOE Junior
- Xiang Liu, IOE Senior
- Channa Schramm, LS&A Junior
- Pamela Martinez Villarreal, SRP: UTEP Eng Junior
- Yongcai Xu, IOE Junior

September 2011 – August 2012

- Francisco Aldarondo, SRP: University of Puerto Rico – Mayaguez Eng Junior
- Amanda Bayagich, Eng Freshman
- Sean Locke, Eng Freshman
- Xiang Liu, IOE Junior
- Nan Wang, Eng Junior
- Nan Zhong, IOE Senior

September 2010 – August 2011

- Paras Garg, Eng Freshman
- Emily Kupa, Eng Freshman
- Kyle Ogrodzinski, IOE Senior
- Jade Watts, IOE Junior

January 2009 – August 2010

- Jade Watts, IOE Sophomore

Other teaching experience

SAUDER SCHOOL OF BUSINESS (Vancouver, British Columbia)

Statistics Instructor – 2007

Comm 291: Application of Statistics in Business

Teaching Assistant – 2004-2008

Graduate level Decision Analysis

Graduate level Forecasting for Management

Graduate level Introduction to Logistics and Operations Management

PUBLICATIONS AND SCHOLARLY PRESENTATIONS¹

Full articles in refereed publications

1. N.D. Parikh, W.J. Marrero, C.J. Sonnenday, A.S. Lok, D.W. Hutton, M.S. Lavieri. Population Based Analysis and Projections of Liver Allocation Redistricting Proposals. *Transplantation* (accepted).
2. T. Borza, B.L. Jacobs, J.S. Montgomery, A.Z. Weizer, T.M. Morgan, K.S. Hafez, C.T. Lee, B.Y. Li*, H.S. Min, C.He, S.M. Gilbert, J.E. Helm, M.S. Lavieri, B.K. Hollenbeck, T.A. Skolarus. No Differences in Population-Based Readmissions After Open and Robotic-Assisted Cystectomy: Implications for Post-Discharge Care. *Urology* (in press)
3. W. Marrero, A.S. Naik, J.J. Friedewald, Y. Xu, D. Hutton, M.S. Lavieri, N. Parikh. Predictors of Deceased Donor Kidney Discard in the United States. *Transplantation*. (online first)
4. N. Krishnan, B. Li*, B.L. Jacobs, S. N. Ambani, T. Borza, H. Chang, B.K. Hollenbeck, T. Morgan, K.S. Hafez, A.Z. Weizer, J.S. Montgomery, C.T. Lee, O. Lesse, M.S. Lavieri, J.E. Helm, T.A. Skolarus. The Fate of Radical Cystectomy Patients After Hospital Discharge: Understanding the Black Box of the Pre-Readmission Interval. *European Urology Focus*. (online first)
5. B. Jacobs, C. He, B. Li*, A. Helfand, N. Krishnan, A.A. Ghaferi, B. Hollenbeck, J.E. Helm, M.S. Lavieri, T.A. Skolarus. Readmission Intensity After High-Risk Surgery. *Journal of Surgical Research*. 213 (1): 60-68. 2017
6. G. Schell, W. Marrero, M.S. Lavieri, J. Sussman, R. Hayward. Data-driven Markov Decision Process Approximations for Personalized Hypertension Treatment Planning. *Medical Decision Making Policy & Practice*. 1(1). 2016
7. W. Hu, M.S. Lavieri, A. Toriello, X. Liu. Strategic Health Workforce Planning. *IIE Transactions*. 48(12): 1127-1138. 2016.
8. G.J. Schell, M.S. Lavieri, F. Jankovic*, X. Li, K.K. Martyn and G.L. Freed. Strategic Modeling of the Neonatal Nurse Practitioner Workforce. *Nursing Outlook*. 64(4): 385-394. 2016.
9. F. Odetola, L. Bruski, G. Zayas-Caban, M.S. Lavieri. An Innovative Framework to Improve Efficiency of Interhospital Transfer of Children in Respiratory Failure. *Annals of the American Thoracic Society*. 13(5): 671-677. 2016.

¹ Throughout this section, I:

- Underlined the names of current graduate student(s) to whom I have provided significant guidance
- Double underlined the names of former graduate student(s) to whom I have provided significant guidance
- Underlined the names of undergraduate student(s) and noted by an asterisk * after their name

10. N. Krishnan, X. Liu, M. Hu*, K. Wu*, J.E. Helm, A. Helfand, B. Li*, A. Zalewski*, H. Chang, B.L. Jacobs, B.K. Hollenbeck, M.S. Lavieri, T.A. Skolarus. A Model to Optimize Follow-up Care and Reduce Hospital Readmissions after Radical Cystectomy. *The Journal of Urology*. 195(5): 1362-1367. 2016.
11. J. Helm, M.S. Lavieri, M. Van Oyen, J. D. Stein and D. Musch. Dynamic Forecasting and Control Algorithms of Glaucoma Progression for Clinician Decision Support. *Operations Research*. 63(5): 979-999. 2015.
12. N. Parikh, D. Hutton, W. Marrero, K. Sangani*, Y. Xu*, M.S. Lavieri. Projections in Donor Organs Available for Liver Transplantation in the United States: 2014-2025. *Liver Transplantation*. 21:855-863. 2015.
13. G. Schell, M.S. Lavieri, X. Li*, A. Toriello, K. Martyn, G. Freed. Strategic Planning of Pediatric Nurse Practitioners: Yielding Self-Sufficiency. *Pediatrics*. 135(2): 298-306. 2015
14. T.A. Skolarus, B.L. Jacobs, F.R. Schroeck, C. He, A. M. Helfand, J. Helm, M. Hu*, M.S. Lavieri, B.K. Hollenbeck. Understanding Readmission Intensity After Radical Cystectomy. *The Journal of Urology*. 193(5): 1500-1506. 2015.
15. E. Lee, M.S. Lavieri, M. Volk, Y. Xu* Applying reinforcement learning techniques to detect hepatocellular carcinoma under limited screening capacity. *Health Care Management Science* 1-13. 2014.
16. G. Schell, M.S. Lavieri, J. Helm, X. Liu*, D. Musch, M. Van Oyen, J. D. Stein. Using Filtered Forecasting Techniques to Determine Personalized Monitoring Schedules for Patients with Open-Angle Glaucoma. *Ophthalmology*. 121(8):1539-46. 2014
17. M. Hu*, B. Jacobs, H. Chang, J. Ye, J. Brathwaite*, T. Morgan, J. S. Montgomery, K.S. Hafez, A.Z. Weizer, S. Gilbert, C.T. Lee, M.S. Lavieri, J.E. Helm, B.K. Hollenbeck, T.A. Skolarus, Sharpening the Focus on Causes and Timing of Readmission after Radical Cystectomy for Bladder Cancer. *Cancer*. 120(9): 1409-1416. 2014
18. G. Schell, M.S. Lavieri, J. D. Stein and D. Musch. Filtering Data from the Collaborative Initial Glaucoma Treatment Study for Improved Identification of Glaucoma Progression. *BMC Medical Informatics and Decision Making* 13(1): 137-145. 2013
19. J.D. Piette, J.B. Sussman, P.N. Pfeiffer, M.J. Silveira, S.S. Baveja, M.S. Lavieri, Maximizing the Value of Mobile Health Monitoring by Avoiding Redundant Patient Reports: Prediction of Depression-Related Symptoms and Adherence Problems in Automated Health Assessment Services. *Journal of Medical Internet Research* 15(7): e118. 2013
20. E. Lee, S. Edward, A. Singal, M.S. Lavieri, M. Volk, Improving Screening for Hepatocellular Carcinoma by Incorporating the Pattern of Alpha-fetoprotein over Time. *Clinical Gastroenterology and Hepatology*. Volume 11: No 4: 437-440. 2013
21. M. Foo, M.S. Lavieri, T. Pickles. Impact of Neoadjuvant Prostate-Specific Antigen Kinetics on Biochemical Failure and Prostate Cancer Mortality: Results From a Prospective Patient Database. *International Journal of Radiation Oncology*Biophysics*Physics*. Volume 85: No 2: 385-392. 2013

22. M.S. Lavieri, M.L. Puterman, S. Tyldesley, W.J. Morris. When to Treat Prostate Cancer Patients Based on their PSA Dynamics. *IIE Transactions on Healthcare Systems Engineering*. Volume 2: No.1: 62-77. 2012
23. V. Chase, A.M. Cohn, T. Peterson, M.S. Lavieri. Predicting Emergency Department Volume using Forecasting Methods to Create a “Surge Response” for Non-Crisis Events. *Academic Emergency Medicine*. Volume 19: No. 5: 569-576, 2012
24. M.S. Lavieri, M.L. Puterman, Optimizing Nursing Human Resource Planning in British Columbia. *Health Care Management Science*. 12: 119-128. 2009
25. M.S. Lavieri, S. Regan, M.L. Puterman, P.A. Ratner. Using Operations Research to Plan the British Columbia Registered Nurses’ Workforce. *Health Care Policy*. Volume 4: No. 2. 2008
26. J. Dekle, M.S. Lavieri, E. Martin, H. Emir, R.L. Francis. A Florida County Locates Disaster Recovery Centers. *Interfaces*. Volume 35: Issue 2. Mar.-Apr. 2005

Refereed Book Chapters

1. M.S. Lavieri, S. Regan, M.L. Puterman, P.A. Ratner. Introduction to the Use of Linear Programming in Strategic Health Human Resource Planning. *Wiley Encyclopedia of Operations Research and Management Science*. 2015

Other publications

1. Shermon, M.S. Lavieri, S. Regan, Forecasting the Supply and Demand for Registered Dental Hygienists in Public Health in Ontario: Development of a Prototype Model. Western University, London, Ontario. Report submitted to the Ontario Association of Public Health Dentistry. 2017.

Articles under review

1. E. Lee, M.S. Lavieri, M. Volk. Optimal Screening for Hepatocellular Carcinoma under Limited Resources: A Restless Bandit Model (under third review)
2. X. Liu, M. Hu*, K. Wu*, J.E. Helm, M.S. Lavieri, T.A. Skolarus. Missed Opportunities in Preventing Hospital Readmissions: Redesigning Post-discharge Checkup Policies (under second review)
3. P. Kazemian, J.E. Helm, M.S. Lavieri, J.D. Stein, M.P. Van Oyen; Dynamic Personalized Monitoring and Treatment Control of Chronic Diseases with Application to Glaucoma Policies (under second review)
4. J.B. Sussman, G.J. Schell, M.S. Lavieri, and R.A. Hayward. Health Impact of Physician Accuracy in Estimating Treatment Disutilities. (under second review)
5. N.D. Parikh, W.J. Marrero, J. Wang*, J. Steuer*, E.Tapper, M. Konerman, D.W. Hutton, E. Byon, M.S. Lavieri. Projections of Non-alcoholic Steatohepatitis Related Liver Transplantation Waitlist Additions. (under second review)
6. G. Schell, R.A. Hayward, J.B. Sussman and M.S. Lavieri. Effect of Delayed Treatment Benefits on Optimal Timing of Starting Statins and Blood Pressure Medications.

7. B.Y. Li*, K.L. Urish, B.L. Jacobs, C. He, T. Borza, H.S. Min, J.M. Dupree, C. Ellimoottil, B.K. Hollenbeck, M.S. Lavieri, J.E. Helm, T.A. Skolarus. A First Look at the CMS Hospital Readmissions Reduction Program Applied to Surgery
8. G. Schell, M.S. Lavieri, G.P. Garcia, J. Sussman, R. Hayward. Optimal Coinsurance Rates for a Heterogeneous Patient Population under Inequality and Resource Constraints
9. P. Kazemian, M.S. Lavieri, M.P. Van Oyen, C. Andrews, J.D. Stein. Personalized Prediction of Open-Angle Glaucoma Progression under Different Target IOP Options Using Filtered Forecasting Methods

Working papers

1. G. Schell, M.S. Lavieri, W. Wiitala, J. Sussman, R. Hayward. Modeling Patient-Specific Treatment Outcomes for Improved Coronary Heart Disease
2. G.P. Garcia, M.S. Lavieri, M. McCrea, T. McAllister, S.P. Broglio, CARE Consortium Investigators. Quantifying the Value of Multidimensional Assessment Models for Acute Concussion
3. H. Chen, H. Ali, W. Marrero, N. Parikh, M.S. Lavieri, D. Hutton. The Cost-Effectiveness of Presumed Consent for Kidney Donors on Patients with End-Stage Renal Disease

Refereed conference proceedings papers

1. E. Lee, M.S. Lavieri, M. Volk. Evaluating Hypothetical Screening Policies on Historical Patient Data. *Proceedings of Data Mining and Health Informatics Workshop 2012*
2. G. Schell, M.S. Lavieri, Filip Jankovic, R. Hayward, J. Sussman, W. Wiitala. Parameterization of Simulation to Compare Hypertension Treatment Policies. *Proceedings of Data Mining and Health Informatics Workshop 2013*

Refereed conference summaries or abstracts

1. S. Joshi*, S. Finley*, T. Borza, X. Liu, T.A. Skolarus, B.L. Jacobs, B.Y. Li*, H. Jim, S.M. Gilbert, Z. Xie*, J.E. Helm, M.S. Lavieri. Personalized Decision Support Tool to Prevent Hospital Readmission for Patients Treated with Radical Cystectomy. *Annual Meeting of the American Urological Association 2017*
2. M.S. Lavieri, X. Liu, G. Garcia, Z. Zhou*, E. Lobaza*, J. Wang*, K. Sugiyama, K. Nitta, C. Andrews, M.P. Van Oyen, J.D. Stein. Using Kalman Filtering to Personalize the Monitoring of Persons with Normal Tension Glaucoma. *The Association for Research in Vision and Ophthalmology 2017*
3. J.D. Stein, P. Kazemian, E. Keyvanshokoo, M.S. Lavieri, M.P. Van Oyen. Using Kalman Filtering to Personalize Prediction of Open-Angle Glaucoma Progression Under Different Target IOP Levels. *American Glaucoma Society Annual Meeting 2017*
4. M.S. Lavieri, E. Lee, M. Volk. Optimal Screening for Hepatocellular Carcinoma under Limited Resources. *ICS2017: INFORMS Computing Society Conference 2017*
5. G. Garcia, M.S. Lavieri, S. Broglio, Quantifying Risk Thresholds for on-field Concussion Diagnosis. *Industrial and Systems Engineering Research Conference (Anaheim, USA: 2016)*

6. W. Marrero, N.D. Parikh, J. Wang*, J. Steuer*, D.W. Hutton, E. Byon, M.S. Lavieri, Donor and Allocation Issues, Living Donor and Split Liver Transplantation, and Hepatobiliary Surgery. *American Association for the Study of Liver Diseases: The Liver Meeting 2016*
7. M.S. Lavieri, G. Schell, J. Sussman, R. Hayward. Implications of True and Perceived Treatment Burden on Cardiovascular Medication Use. *Society for Medical Decision Making Annual Meeting 2016*
8. T. Borza, B.L. Jacobs, J.S. Montgomery, T.M. Morgan, A.Z. Weizer, K.S. Hafez, C.T. Lee, B.Y. Li, C. He, J.E. Helm, M.S. Lavieri, B.K. Hollenbeck, T.A. Skolarus. Variation in Readmission Parameters Between Open and Robotic Assisted Radical Cystectomy: a Contemporary Population Level Analysis. *American Urological Association Annual Meeting 2016*
9. T. Borza, B.L. Jacobs, B.Y. Li, C. He, J.E. Helm, M.S. Lavieri, B.K. Hollenbeck, T.A. Skolarus. Comparison of Readmission Parameters for Cystectomy Versus Other Major Abdominal and Chest Surgery. *American Urological Association Annual Meeting 2016*
10. G. Schell and M.S. Lavieri. Optimal Copayment Restructuring for a Heterogeneous Patient Population. *Patient-Centric Healthcare Management in the Age of Analytics 2016*
11. X. Liu, M. Hu*, J. Helm, M.S. Lavieri, T. Skolarus, K. Wu. Missed Opportunities in Preventing Readmissions: Redesigning Post-discharge Checkup Policies. *Patient-Centric Healthcare Management in the Age of Analytics 2016*
12. N.D. Parikh, W.J. Marrero, Y. Xu, A.S. Lok, D.W. Hutton, M.S. Lavieri. Region-Based Projections of Deceased Liver Donors from 2015-2025: An Analysis of Proposed UNOS Liver Allocation Redistricting. *American Association for the Study of Liver Diseases: The Liver Meeting 2015*
13. E. Lee, M. Lavieri, M. Volk. Screening for Hepatocellular Carcinoma: A Restless Bandit Model. *Institute for Operations Research and the Management Sciences Healthcare Conference 2015*
14. X. Liu, J.E. Helm, M. Hu*, M.S. Lavieri, T.A. Skolarus. Missed Opportunities in Preventing Hospital Readmissions: Redesigning Post-Discharge Checkup Policies. *Institute for Operations Research and the Management Sciences Healthcare Conference 2015*
15. P. Kazemian, J. Helm, M.S. Lavieri, J.D. Stein, M. Van Oyen. Dynamic Personalized Monitoring and Treatment Control of Glaucoma. *Institute for Operations Research and the Management Sciences Healthcare Conference 2015*
16. G. Schell, M. Lavieri. Copayment Restructuring for a Heterogeneous Patient Population. *Institute for Operations Research and the Management Sciences Healthcare Conference 2015*
17. N. Krishnan, B. Li*, B.L. Jacobs, A. Sapan, B.K. Hollenbeck, T. Morgan, K.S. Hafez, A.Z. Weizer, J.S. Montgomery, C.T. Lee, M.S. Lavieri, J. Helm, C. He, T.A. Skolarus. What Happens After Radical Cystectomy Hospital Discharge? Understanding the Black Box of the Pre-Readmission Interval. *North Central Section of the American Urological Association Annual Meeting, 2015.*
18. M.S. Lavieri, S. Devaprasad*, M. Li*, G. Schell, P. Villareal*, J. Helm, M. Van Oyen, D. Musch, J. D. Stein. Kalman Filter User-Friendly Decision Support Tool for Visualizing and Monitoring Open Angle Glaucoma Progression. *American Glaucoma Society Annual Meeting, 2015.*
19. N. Krishnan, X. Liu, M. Hu*, K. Wu*, J.E. Helm, A. Helfand, B. Li*, A. Zalewski*, H. Chang, B.L. Jacobs, B.K. Hollenbeck, M.S. Lavieri, T.A. Skolarus. A Model to Optimize Follow-up Care and Reduce Hospital. *American Urological Association Annual Meeting 2015*

20. B. Jacobs, C. He, B. Li*, M. Hu*, A. Helfand, N. Krishnan, B. Hollenbeck, J. Helm, M.S. Lavieri, T.A. Skolarus. Readmission intensity after high-risk surgery. *American Urological Association Annual Meeting 2015*
21. N. Parikh, D. Hutton, K. Sangani*, Y. Xu*, M.S. Lavieri. Projections of US Donor Organ Availability for Liver Transplantation. *World Transplant Congress 2014*
22. M.S. Lavieri, S. Devaprasad*, M. Li*, G. Schell, P. Villareal*, J. Helm, M. Van Oyen, D. Musch, J. D. Stein. User Friendly Tool Using Kalman Filter Algorithms to Display Glaucoma Progression Indicators and Personalized Time to Next Test. *The Association for Research in Vision and Ophthalmology 2014*
23. G. Schell, M.S. Lavieri, J. D. Stein and D. Musch. Logistic Regression with Filtered Data to Improve Progression Identification. *Society for Medical Decision Making Annual Meeting 2013*
24. G. Schell, M.S. Lavieri, J. Helm, X. Liu*, D. Musch, M. Van Oyen, J. D. Stein. Comparison of Control Algorithms for Scheduling Testing Visits. *Society for Medical Decision Making Annual Meeting 2013*
25. M. Hu*, B. Jacobs, H. Chang, J. Ye, J. Brathwaite*, T. Morgan, J. S. Montgomery, K.S. Hafez, A.Z. Weizer, S. Gilbert, C.T. Lee, M.S. Lavieri, J.E. Helm, B.K. Hollenbeck, T.A. Skolarus, Understanding Readmissions After Cystectomy. *American Urological Association North Central Section 87th Annual Meeting 2013*
26. J. D. Stein, J. Helm, M.S. Lavieri, , D. Musch, G. Schell, M. Van Oyen, Using Filtered Forecasting Techniques to Determine Personalized Monitoring Schedules for Patients with Open Angle Glaucoma. *5th World Glaucoma Congress 2013*
27. P. Kazemian, J. Helm, M.S. Lavieri, J.D. Stein, M. Van Oyen. Optimal Simultaneous Dynamic Monitoring and Treatment Control for Chronic Diseases. *Institute for Operations Research and the Management Sciences Healthcare 2013*
28. G. Schell, M. Lavieri, R. Hayward, J. Sussman, W. Wiitala. Risk-Sensitive Treatment Decisions to Minimize Coronary Heart Disease Events. *Institute for Operations Research and the Management Sciences Healthcare 2013*
29. E. Lee, M. Lavieri, M. Volk. Screening for Hepatocellular Carcinoma in a Capacitated System. *Institute for Operations Research and the Management Sciences Healthcare 2013*
30. W. Hu, M.S. Lavieri, A. Toriello, X. Liu*. Strategic Health Workforce Planning. *Institute for Operations Research and the Management Sciences Healthcare 2013*
31. M.S. Lavieri, J. Helm, G. Schell, M. Van Oyen, D. Musch, J. D. Stein, Personalizing the Frequency and Timing of Testing to Check for Glaucoma Progression: a Novel Approach. *The Association for Research in Vision and Ophthalmology 2013*
32. J. D. Stein, J. Helm, M.S. Lavieri, , D. Musch, G. Schell, M. Van Oyen, Using Filtered Forecasting Techniques to Determine Personalized Monitoring Schedules for Patients with Open Angle Glaucoma. *American Glaucoma Society Annual Meeting 2013*
33. Lee, E., S. Edward, A. Singal, M.S. Lavieri, M. Volk, Improving Screening for Hepatocellular Carcinoma by Incorporating the Pattern of Alpha-fetoprotein over Time. *American Association for the Study of Liver Diseases Annual Meeting 2012*
34. G. Schell, M.S. Lavieri, J. Sussman, R. Hayward, Optimal Treatment Policies for Risk-Averse Patients with Limited Resources. *Institute for Operations Research Applied to Health Services 2012*

35. V. Chase, M.S. Lavieri, A.M. Cohn, T. Peterson. Modeling Care Utilization Ratios to Guide Surge Responses for Non-Crisis events. *Society for Medical Decision Making Annual Meeting* 2011
36. M.S. Lavieri, J. Helm, D.C. Musch, J.D. Stein, M. Van Oyen. Dynamic State Space Models of Glaucoma. *Institute for Operations Research and the Management Sciences Healthcare* 2011
37. G. Schell, M.S. Lavieri, D.C. Musch, J.D. Stein. Analysis of Repeated Measures Data for Glaucoma Progression Classification. *Institute for Operations Research and the Management Sciences Healthcare* 2011
38. M. Foo, M.S. Lavieri, T. Pickles. Impact of Neoadjuvant Prostate-Specific Antigen Kinetics on Biochemical Failure and Prostate Cancer Mortality: Results From a Prospective Patient Database. *Annual Meeting of the American Society for Radiation Oncology* 2010

Keynote speaker

1. M.S. Lavieri. Diseño de Distribución Eficaz de Medicamentos Para Pacientes con Hipertensión con Escasos Recursos (*efficient distribution of medication for hypertensive patients with scarce resources*). Congreso Internacional de Enfermedades Crónicas no Transmisibles y Enfermedades Renales (International Congress of Non-Transmissible Chronic Conditions) (La Paz, Bolivia: 2014)
2. M.S. Lavieri. Application of Operations Research to Chronic Disease Management. *International Conference on Operations Research: Special Section as the Recipient of the Young Participant with Most Practical Impact Award* (Rotterdam, Netherlands: 2013)
3. M.S. Lavieri. Sequential Disease Management of Patients with Chronic Conditions: Examples of how Operations Research Models may Guide Medical Decision Making. *ORAHS* (Istanbul, Turkey: 2013)
4. M.S. Lavieri. Data-Driven Medical Decision Making of Chronic Disease Patients. *Statistical and Applied Mathematical Sciences Institute Opening Workshop, Data-Driven Decisions in Healthcare* (North Carolina, USA: 2012)
5. M.S. Lavieri. Modeling PSA Dynamics. *Cancéropôle Lyon Auvergne Rhône-Alpes Day on Operations Research in Cancer Treatment & Operation Management* (Paris, France: 2010)
6. M.S. Lavieri. Tutorial: Applying Operations Research in Cancer Care. *Operational Research Applied to Health Services PhD Workshop* (Toronto, Canada: 2008)

Invited seminar speaker at peer institutions (since 2010)

1. M.S. Lavieri. Personalizing Management of Glaucoma Patients. *The Daniel J. Epstein Department of Industrial and Systems Engineering, University of Southern California* (California, USA: 2017)
2. M.S. Lavieri. Personalizing Management of Glaucoma Patients. *Haskayne School of Business, University of Calgary* (Calgary, Canada: 2017)
3. M.S. Lavieri. Managing Patients with Chronic Conditions. *Pacific Institute for the Mathematical Sciences, University of Calgary* (Calgary, Canada: 2017)
4. M.S. Lavieri. Optimal Coinsurance Rates for a Heterogeneous Patient Population under Constraints on Inequality and Resources. *Georgia Institute of Technology, H. Milton Stewart School of Industrial and Systems Engineering* (Atlanta, USA: 2015)

5. M.S. Lavieri. Managing Patients with Chronic Conditions. North Carolina State University, Edward P. Fitts Department of Industrial and Systems Engineering (Raleigh, USA: 2014)
6. M.S. Lavieri. Sequential Disease Management of Patients with Chronic Conditions. *Georgia Institute of Technology, H. Milton Stewart School of Industrial and Systems Engineering* (Atlanta, USA: 2014)
7. M.S. Lavieri. Sequential Disease Management of Patients with Chronic Conditions. *University of Pittsburgh, Katz Business School* (Pittsburgh, USA: 2014)
8. M.S. Lavieri. Sequential Disease Management of Patients with Chronic Conditions. *Texas A&M, Department of Industrial and Systems Engineering* (Texas, USA: 2013)
9. M.S. Lavieri. Dynamic Forecasting and Control Algorithms with Application to Glaucoma. *University of Minnesota, Department of Industrial and Systems Engineering* (Minnesota, USA: 2012)
10. M.S. Lavieri. When to Treat Prostate Cancer Patients Based on their PSA Dynamics. *University of Illinois, Urbana-Champaign* (Illinois, USA: 2011)
11. M.S. Lavieri. Special Topics in Healthcare OR *Universidad de los Andes* (Bogota, Colombia: 2010)

Selected seminars at the University of Michigan (since 2010)

1. M.S. Lavieri, M.P. Van Oyen, J.D. Stein. Forecasting and Control Methodology for Monitoring of Glaucoma Patients. *Providing Better Healthcare Through Systems Engineering: Seminars and Discussion. Department of Industrial and Operations Engineering.* 2016
2. M.S. Lavieri, E. Lee, M. Volk. Screening for Hepatocellular Carcinoma: A Restless Bandit Model. *School of Public Health Symposium: Computational Modeling in Population Health Panel.* 2016
3. M.S. Lavieri. Managing Patients with Chronic Conditions. *Working Group on Modeling Health and Economic Outcomes.* 2016
4. M.S. Lavieri, F. Odetola, G. Zayas-Caban. An Innovative Framework to Improve Efficiency of Interhospital Transfer of Children in Respiratory Failure. *Providing Better Healthcare Through Systems Engineering: Seminars and Discussion. Department of Industrial and Operations Engineering.* 2015
5. M.S. Lavieri. A Tool for Physicians Developed Using Filtered Forecasting Techniques. *UM Health System Advisory Board Meeting.* 2014
6. M.S. Lavieri, J.D. Stein, M. Van Oyen. Personalized Monitoring and Forecasting of Open Angle Glaucoma Progression. *Ophthalmology Health Services Research Group Meeting.* 2014
7. M.S. Lavieri, W. Wiitala. Data-driven Medical Decision Making of Chronic Disease Patients. *Providing Better Healthcare Through Systems Engineering: Seminars and Discussion. Department of Industrial and Operations Engineering.* 2013
8. M.S. Lavieri. *Medical Decision Making of Chronic Disease Patients. Toyota Artificial Intelligence Seminar Series. Department of Electrical Engineering and Computer Science.* 2013
9. M.S. Lavieri. Optimizing the Frequency and Timing of Testing to Check for Glaucoma Progression, a Novel Approach. *Vision Research Seminar. Department of Ophthalmology and Visual Sciences.* 2012

10. M.S. Lavieri. Dynamic Forecasting and Control Algorithms with Application to Glaucoma. *Department of Statistics Seminar Series 2012. Providing Better Healthcare Through Systems Engineering: Seminars and Discussion. Department of Industrial and Operations Engineering 2011*
11. V. Chase (mentored by M.S. Lavieri, A.M Cohn and T. Peterson) Predicting ED Patient Volume in Order to Create a “Surge Response” for Non-Crisis Events. *University of Michigan Department of Emergency Medicine. 2011*
12. M.S. Lavieri. When to Treat Prostate Cancer Patients Based on their PSA Dynamics. *University of Michigan Decision Consortium. Department of Psychology. 2011*
13. M.S. Lavieri. Guiding Policy and Patient-specific Healthcare Decisions using Industrial Engineering. *Child Health Evaluation and Research Unit Health Services Research Seminar 2011*
14. M.S. Lavieri. Improving Health Care Delivery and Medical Decision Making Using Operations Research Techniques. *Internal Medicine Grand Rounds 2010*

Invited conference research presentations

1. G.G. Garcia, M.S. Lavieri, S. Broglio. An Optimization Approach To Concussion Management. *Institute for Operations Research and the Management Sciences Annual Meeting* (Nashville, USA: 2016)
2. X. Liu, J. Helm, M.S. Lavieri, T. Skolarus. A POMDP for Reducing Readmissions Through Inpatient Outpatient Joint Control. *Institute for Operations Research and the Management Sciences Annual Meeting* (Nashville, USA: 2016)
3. M.S. Lavieri. Role Of Operations Research In Chronic Disease Management. *Institute for Operations Research and the Management Sciences Annual Meeting* (Nashville, USA: 2016)
4. W. Marrero, J. Wang*, J. Steuer*, E. Byon, M.S. Lavieri, D.W. Hutton, N.D. Parikh. Modeling Supply, Demand, and Allocation in Liver Transplantation. *Institute for Operations Research and the Management Sciences Annual Meeting* (Nashville, USA: 2016)
5. E. Lee, M.S. Lavieri, M. Volk, Screening for Hepatocellular Carcinoma under Limited Resources: A POMDP Approach. *Conference on Operational Research Applied to Health Services* (Pamplona, Spain: 2016). *Production and Operations Management Society Annual Conference* (Orlando, USA: 2016). *Institute for Operations Research and the Management Sciences Annual Meeting* (Philadelphia, USA: 2015).
6. W. Marrero, R.A. Hayward, M.S. Lavieri, G. Schell, J.B. Sussman, Policy Approximation for Optimal Treatment Planning. *Institute for Operations Research and the Management Sciences Annual Meeting* (Philadelphia, USA: 2015).
7. P. Kazemian, J. Helm, M.S. Lavieri, J.D. Stein, M. Van Oyen, Dynamic Personalized Monitoring and Treatment Control of Chronic Diseases. *Institute for Operations Research and the Management Sciences Annual Meeting* (Nashville, USA: 2016). *Production and Operations Management Society Annual Conference* (Orlando, USA: 2016). *Institute for Operations Research and the Management Sciences Annual Meeting* (Philadelphia, USA: 2015). *Production and Operations Management Society Annual Conference* (Washington, DC: 2015). *Institute for Operations Research and the Management Sciences Annual Meeting* (San Francisco, USA: 2014). *Production and Operations Management Society Annual Conference* (Atlanta, GA: 2014).

8. M. Hu*, J. Helm, M.S. Lavieri, X. Liu, T. Skolarus, K. Wu*. Missed Opportunities in Preventing Readmissions: Redesigning Post-discharge Checkup Policies. *Institute for Operations Research and the Management Sciences Annual Meeting* (Philadelphia, USA: 2015). *Institute for Operations Research and the Management Sciences Annual Meeting* (San Francisco, USA: 2014). *National Science Foundation Health Systems Optimization Workshop* (Chicago, IL, USA: 2014)
9. G.J. Schell and M.S. Lavieri. Optimal Copayment Restructuring for a Heterogeneous Patient Population. *Institute for Operations Research and the Management Sciences Annual Meeting* (Philadelphia, USA: 2015). *International Symposium on Mathematical Programming Annual Meeting* (Pittsburgh, USA: 2015). *National Science Foundation Health Systems Optimization Workshop* (Chicago, IL, USA: 2014)
10. E. Lee, M.S. Lavieri, M. Volk, Screening for Hepatocellular Carcinoma under Limited Resources: A POMDP Approach. *Institute for Operations Research and the Management Sciences Annual Meeting* (San Francisco, USA: 2014).
11. D. Hutton, M.S. Lavieri, W. Marrero, N. Parikh, K. Sanghani*, Y. Xu*. Forecasting the National Deceased Donor Organ Availability for Liver Transplantation. *Institute for Operations Research and the Management Sciences Annual Meeting* (San Francisco, USA: 2014).
12. G.J. Schell, M.S. Lavieri, J.B. Sussman and R.A. Hayward. Optimal Copayment Restructuring for Hypertension Pharmacotherapy. *Institute for Operations Research and the Management Sciences Annual Meeting* (San Francisco, USA: 2014)
13. G.J. Schell, M.S. Lavieri, W.L. Wiitala, J.B. Sussman and R.A. Hayward. Optimal Hypertension Management for Patient-Specific Treatment Outcomes. *Institute of Industrial Engineers Annual Conference*. (Montreal, Canada: 2014).
14. G.J. Schell, M.S. Lavieri, W.L. Wiitala, J.B. Sussman and R.A. Hayward. Modeling Patient-Specific Treatment Outcomes for Improved Coronary Heart Disease Management. *Production and Operations Management Society Annual Conference* (Atlanta, GA: 2014).
15. Lee E., M.S. Lavieri, M. Volk. Design of Hepatocellular Carcinoma Screening Policies through Reinforcement Learning. *Institute for Operations Research and the Management Sciences Annual Meeting* (Minnesota, USA: 2013)
16. M.S. Lavieri. Healthcare Operations Research: Research, Teaching and Service. *Institute for Operations Research and the Management Sciences Annual Meeting* (Minnesota, USA: 2013)
17. P. Kazemian, J. Helm, M.S. Lavieri, J.D. Stein, M. Van Oyen. Optimal Simultaneous Dynamic Monitoring and Treatment Control for Chronic Diseases. *Institute for Operations Research and the Management Sciences Annual Meeting* (Minnesota, USA: 2013)
18. W. Hu, M.S. Lavieri, A. Toriello, X. Liu*. Strategic Health Workforce Planning: Modeling, Optimality, and Uncertainty. *Institute for Operations Research and the Management Sciences Annual Meeting* (Minnesota, USA: 2013)
19. J. Helm, M.S. Lavieri, M. Van Oyen, J. D. Stein. Sequential Filtering of Glaucoma Progression. *Institute for Operations Research and the Management Sciences Annual Meeting* (Arizona, USA: 2012)
20. M.S. Lavieri, J. Helm, G. Schell, M. Van Oyen, J. D. Stein and D. Musch. Sequential Monitoring of Glaucoma Patients. *Institute for Operations Research and the Management Sciences Annual Meeting* (Arizona, USA: 2012)

21. G. Schell, M.S. Lavieri, J. Sussman, R. Hayward. Optimal Optimal Hypertension Management for Risk-averse Patients with Scarce Resources. *Institute for Operations Research and the Management Sciences Annual Meeting* (Arizona, USA: 2012)
22. V. Chase, M.S. Lavieri, A.M. Cohn, T. Peterson. Modeling Care Utilization Ratios to Guide Surge Responses for Non-Crisis events. *Invited Poster Presentation - Institute for Operations Research and the Management Sciences Annual Meeting* (North Carolina: 2011)
23. M.S. Lavieri. Guiding Policy and Patient-Specific Healthcare Decisions using Operations Research. *George B. Dantzig invited session - Institute for Operations Research and the Management Sciences Annual Meeting* (Texas, USA: 2010)
24. J. Helm, G. Schell, M.S. Lavieri, M. Van Oyen, J. D. Stein and D. Musch. Monitoring Glaucoma Patients Using Visual Field Progression and Intraocular Eye Pressure *Institute for Operations Research and the Management Sciences Annual Meeting* (Texas, USA: 2010)
25. M.S. Lavieri, M.L. Puterman, S. Shechter, S. Tyldesley. When to Treat Prostate Cancer Patients Based on their PSA Dynamics. *Pierskalla competition invited session - Institute for Operations Research and the Management Sciences Annual Meeting* (California, USA: 2009)
26. M.S. Lavieri, M.L. Puterman, S. Shechter, S. Tyldesley. Radiation Therapy Treatment Decision Making for Prostate Cancer Patients Based on PSA Dynamics. *34th Conference on Operational Research Applied to Health Services* (Toronto, Canada: 2008); *Institute for Operations Research and the Management Sciences Annual Meeting* (Washington, USA: 2008); *Mayo Clinic Conference on Systems Engineering and Operations Research in Health Care* (Rochester, USA: 2009)
27. M.S. Lavieri, T. Pickles, M.L. Puterman, S. Shechter, S. Tyldesley. Modeling of PSA Dynamics of Prostate Cancer Patients Receiving Neoadjuvant Hormone Therapy Prior to Radiation Therapy. *Institute for Operations Research and the Management Sciences Annual Meeting* (Seattle, USA: 2007); *Joint Statistical Meetings* (Denver, USA: 2008)
28. S. Regan, M.S. Lavieri, M.L. Puterman, P.A. Ratner. Applying Operations Research to Health Human Resource Planning. *Canadian Institute for Health Information Health Human Resources Conference* (Ottawa, Canada: 2007)
29. M.S. Lavieri, S. Regan, M.L. Puterman, P.A. Ratner. A Unified Approach to Health Human Resource Planning in British Columbia. *Canadian Association for Health Services and Policy Research* (Toronto, Canada: 2007); *Poster session at the UBC Centre for Healthcare Management: An Operations Research Symposium* (Vancouver, Canada: 2007)
30. M.S. Lavieri, J. French, T. Pickles, M.L. Puterman, S. Shechter, S. Tyldesley. Improving Accessibility to Radiation Therapy for Cancer Patients. *Institute for Operations Research and the Management Sciences Annual Meeting* (Pittsburgh, USA: 2006)
31. M.S. Lavieri, M.L. Puterman. Optimal Nursing Workforce Planning. *Institute for Operations Research and the Management Sciences Annual Meeting* (San Francisco, USA: 2005); *Canadian Operational Research Society Annual Meeting* (Montreal, Canada: 2006); *22nd European Conference on Operational Research* (Prague, Czech Republic: 2007); *33rd Conference on Operational Research Applied to Health Services* (Saint Etienne, France: 2007)
32. M.S. Lavieri, S. Yin, M.L. Puterman. An LP Based Distribution Network Planning Tool for a Large Pulp and Paper Manufacturer. *Institute for Operations Research and the Management Sciences Annual Meeting* (Atlanta, USA: 2003); *XI Latin American Summer Workshop on Operations Research* (Villa de Leyva, Colombia: 2005)

Other invited presentations

1. M.S. Lavieri. Panelist in: Engaging healthcare managers and practitioners through OM/OR education. Conference on Operational Research Applied to Health Services (Pamplona, Spain: 2016).
2. M.S. Lavieri. Panelist in: Minority Issues Forum Topics for PhD students (Nashville, USA: 2016)
3. M.S. Lavieri. When to Treat Prostate Cancer Patients Based on their PSA Dynamics (invited poster). *Veterans Affairs Health Services Research and Development Service/Veterans Engineering Resource Center National Field-based Conference* (Indiana: 2010)
4. M.S. Lavieri. Nursing Workforce Planning Models *Vancouver Island Health Authority* (Videoconference presentation: 2010)

Other abstracts in non-refereed conference proceedings

1. G. Schell, M.S. Lavieri, R. Hayward, J. Sussman, W. Wiitala. Sequential Resource Allocation Decisions for Coronary Heart Disease Patients. *Institute for Operations Research and the Management Sciences Annual Meeting* (Minnesota, USA: 2013)
2. M.S. Lavieri. Medical Decision Making of Chronic Disease Patients. *Canadian Operational Research Society* (Vancouver, Canada: 2013)
3. A. Toriello, M.S. Lavieri. Strategic Health Care Workforce Planning. *Institute for Operations Research and the Management Sciences Annual Meeting* (Arizona, USA: 2012)
4. Lee E, Lavieri MS, Volk M. Screening for Hepatocellular Carcinoma: An Application of Dynamic Allocation Indices. *Institute for Operations Research and the Management Sciences Annual Meeting* (Arizona, USA: 2012)
5. J. Helm, G. Schell, M.S. Lavieri, M. Van Oyen, J. D. Stein and D. Musch. Dynamic Forecasting and Control Algorithms with Application to Glaucoma. *Institute for Operations Research and the Management Sciences Annual Meeting* (North Carolina, USA: 2011)

RESEARCH PROGRAMS UNDERWAY

- **Improved Monitoring and Control of Disease Progression:** the purpose of this research area is to determine the optimal frequency of monitoring chronic diseases based on each patient's progression characteristics which are learned sequentially over time. System dynamic models are integrated with real-time feedback-driven forecasting and control algorithms to help clinicians determine the interval of time until a particular patient should be monitored next and the type of test that should be taken at that visit. Going beyond monitoring, we have also started investigating how to set treatment targets to optimize long-term management of the disease. We extend Linear-quadratic-Gaussian control (LQG) theory by proving that the classical two-way separation of optimal state estimation and control applies. The models have been validated on glaucoma patients using data from two large multi-center clinical trials. We are in the process of continuing validation on data from an additional multi-center clinical trial, data collected from an NIH funded study, and clinical observational data from two partnering hospitals. 6 PhD students (Jonathan Helm, Gregory Schell, Xiang Liu, Pooyan Kazemian, Gian-Gabriel

Garcia, and Esmaeil Keyvanshokoo), 1 master student, 22 undergraduate students and one medical student have been involved in this research. This research has been done under my leadership and that of a partnering clinician from the Department of Ophthalmology (Dr. Joshua Stein, MD). Inside of U of M, I have counted with the collaboration of a senior faculty member from the IOE Department (Dr. Mark Van Oyen, PhD) and a senior faculty member from the Department of Ophthalmology (Dr. David Musch, PhD). Outside of U of M I am collaborating with Dr. Mae Gordon, PhD (Professor in the Department of Ophthalmology and Visual Sciences, Washington University of St. Louis), Dr. Chris Johnson, PhD (Professor in the Department of Ophthalmology and Visual Sciences, University of Iowa), Dr. Joel Schuman, MD (Chair of Ophthalmology, NYU Langone Medical Center), Dr. Gadi Wollstein, MD (Associate Professor of Ophthalmology, NYU) and Dr. Alan Robin, MD (Associate Professor of Ophthalmology and International Health, Johns Hopkins University).

In addition to the ongoing work on glaucoma monitoring, I have been:

- developed a **modeling framework of inpatient care and postoperative monitoring to decrease unnecessary hospital readmissions after cystectomy** (in collaboration with former PhD student, Dr. Jonathan Helm, PhD (faculty at Indiana University), two urologists (Dr. Ted Skolarus, MD at the University of Michigan and Dr. Bruce Jacobs, MD at the University of Pittsburgh), 1 PhD student (Xiang Liu), 7 engineering undergraduate students, two pre-med students, one medical student, and two medical fellows).
- investigated **monitoring of patients in pediatric intensive care units** to determine transfer thresholds based on each patient's disease dynamics (in collaboration with one master student, Dr. Gabriel Zayas-Caban, PhD (Post-Doctoral student at the Center for Healthcare Engineering and Patient Safety), and Dr. Folafoluwa Odetola, MD (Department of Pediatrics and Communicable Diseases).
- participated in initial studies to design a **modeling framework for depression monitoring using mobile health** (in collaboration with Dr. John Piette, PhD (Veterans Affairs (VA) Senior Research Career Scientist and Professor of Internal Medicine, University of Michigan))
- **Disease Screening in a Capacitated System:** the purpose of this research area is to investigate how patients suffering from a given disease should be screened for further diseases in a capacitated system. The policies derived incorporate individual patient information (which is gathered sequentially over time) while taking resource availability into consideration. Within the reinforcement learning framework we have developed and validated policies that greatly improve upon current practice. Within the restless, multi-armed bandit framework, we have studied structural properties that greatly simplify the problem at hand. Screening for liver cancer for patients suffering from cirrhosis has been used as the test bed. The policy's performance is tested on patient data from the Hepatitis-C Antiviral Long Term Treatment against Cirrhosis as well as patient data collected at the University of Michigan Hospital. A PhD student (Elliot Lee), a medical resident, a master student and 3 undergraduate students have been involved in this research. Furthermore, the research is done in collaboration with two clinicians: Dr. Michael Volk, MD (Director of Liver Transplantation and Chief of the Gastroenterology and Nutrition Division at Loma Linda University, California) and Dr. Amit Singal, MD (Division of Digestive and Liver Diseases, University of Texas Southwestern, Texas).

- **Treatment Planning for Chronic Disease Patients:** the purpose of this research area is to develop a modeling framework to guide sequential treatment decisions (e.g. medications and amount of medications to take) faced by chronic disease patients. We have created a constrained Markov decision process formulation to determine the optimal treatment regimen while incorporating (1) drug titration and discontinuation, (2) the constrained resources available for treatment, and (3) the level of risk aversion - and corresponding conditional value at risk - of the patient. Managing hypertension and coronary heart disease risk is used as the test bed. We have parameterized the model using longitudinal clinical data from a sample of the 2.5 million patients from the Veterans Affairs hospital system. Using the results of the patient-centered MDP formulation, we have also started to address the problem of how to incentivize adherence to the optimal treatment plan by modifying the medication copayments paid by the insurance provider. Three PhD students (Greggory Schell, Gian Gabriel Garcia and Wesley Marrero) and three undergraduate students have actively participated in this research. The research is done in collaboration with two faculty members from the Division of General Internal Medicine at the University of Michigan and Research Scientists at the VA Ann Arbor Healthcare System (Dr. Jeremy Sussman, MD and Dr. Rodney Hayward, MD) and a Research Health Science Specialist at the VA Ann Arbor Healthcare System (Dr. Wyndy Wiitala, PhD).
 - Potential **applications to third-world countries** (specifically Bolivia) have been explored in collaboration with Dr. John Piette, PhD (VA Senior Research Career Scientist and Professor of Internal Medicine, University of Michigan) and Dr. Samuel Cordova-Roca, MD (President of the Latin American Atherosclerosis Society). One undergraduate student and one former PhD student (Greggory Schell) are involved in this application.
 - I am also been working on **extensions to the prostate cancer treatment planning algorithms** developed during my PhD dissertation with collaborators from the BC Cancer Agency (Canada), the Peter MacCallum Cancer Centre (Australia) and a Post-Doctoral student at the Center for Healthcare Engineering and Patient Safety.
- **Capacity Planning:** As I study the interaction between medical decisions and capacity allocation, models to meet short and long-term capacity requirements are needed. I have therefore started to develop:
 - **Short-term workforce capacity models** to determine when to call additional physicians given forecasted demand at the emergency department. The models have been done in collaboration with two master students, IOE faculty Dr. Amy Cohn, PhD and Emergency Department physician Dr. Timothy Peterson, MD.
 - **Long-term workforce management models** for large health care systems with arbitrary deterministic non-decreasing demand, using infinite linear programming. The initial model monitors hiring, training and promotion of health care workers across the entire system. We provide a series of conditions the system can satisfy to ensure that one-period lookahead policies are optimal. We also give a sensitivity analysis of the cost impact of various system parameters, such as demand. Finally, we apply the models to gain a deeper understanding of the United States' Pediatric Nurse Practitioner (PNP) workforce and the Neonatal Nurse Practitioner (NNP) workforce. Four undergraduate students, one master student and two PhD students (Greggory Schell and Xiang Liu) from the University of Michigan, and one PhD student from the Georgia Institute of Technology (Weihong Hu) have participated in this research. The research is done in collaboration with Dr. Alejandro Toriello, PhD (faculty at the Georgia Institute of Technology), Dr. Gary Freed, MD (The Percy and Mary Murphy Professor of Pediatrics and Child Health Delivery at the University of Michigan) and Dr. Kristy Martyn, PhD, RN (Assistant Dean for Clinical Advancement, Emory University).

- **Long-term donor capacity planning.** Motivated by our work in liver cancer screening (where organ transplantation is one of the main treatments to this type of cancer), I have started investigating capacity of organ donors in our nation. It is well known that demand for transplant organs greatly exceeds supply, yet most of the focus in the literature has been placed on gaining a better understanding on how to best allocate the limited organs available. To supplement this work, I have been working together with two PhD students (Wesley Marrero and Huey-Fen Chen), two master students, six undergraduate students, faculty from the University of Michigan's School of Public Health (Dr. David Hutton, PhD), and faculty from the University of Michigan Department of Gastroenterology and Hepatology (Dr. Neehar Parikh, MD) to develop models to better understand the supply and demand of organs for transplant both at a national and at a regional level.

TECHNOLOGY TRANSFER

Provisional patents and patents pending

Patient Specific Modeling and Forecasting of Disease Progression

- Patent 13/668,280 filed on November 4, 2012
- Provisional Patent 010109-11001P filed on November 4, 2011

Industry interactions

- Ontario Public Health Association: Collaborative project on HHR Planning (Supply and Demand) for Ontario Association of Public Health Dentistry (2013-2017)
- Tauber Institute student projects advised: 2011 (Cardinal Health – 3rd prize in Spotlight competition), 2012 (Chrysler), 2013 (Ford), 2014-2015 (General Motors), 2016 (Volkswagen, Boeing)
- Veterans Administration Ann Arbor Healthcare System: Investigation of opportunities to apply engineering tools to improve operational efficiency and quality of care. (2011-2012)
- Altarum Institute: Collaborative project on the trade-off between treatment and prevention. (2010)

OUTREACH ACTIVITIES

- Development of Emergency Department Simulation Game to teach pre-college students industrial engineering concepts in an interactive way (already shared with over 270 girls from under-served schools from Ypsilanti, Detroit and Ann Arbor).
 - In collaboration with Females Excelling More in Math, Engineering, and Science; Women in Science and Engineering Program and U-M Center for Healthcare Engineering and Patient Safety.
 - The game has also been shared with Bonder Scholars from multiple universities (both nationally and internationally), who implemented it at their local communities as part of the Bonder Scholar Service Day
- Development of Diversity Initiative at the Industrial and Operations Engineering Department to address (1) the variability of female and underrepresented minority students admitted to pursue graduate level programs in Industrial and Operations Engineering and (2) the high rate of female

and underrepresented minority students that discontinue their education prior to completion of their PhD degree

- New seminar series geared towards promoting role models that have had an active involvement and/or strong sensitivity to the needs of underrepresented minority students at their institutions
 - Increased networking opportunities for underrepresented minority students
 - Provide a safe environment to discuss the needs of underrepresented minority students in our department through diversity-sponsored activities
 - Support increased follow-up of student recruits
 - Active participation in the Society of Hispanic Professional Engineers and Graduate Society of Women Engineers sponsored activities
 - Revitalized the University of Michigan INFORMS Student Chapter
 - Recruited students to fill in all officer positions and established formal procedure to ensure sustainability of the chapter
 - Developed a document describing the roles of each position
 - Guided students in the development of a Chapter website and sponsored activities and outreach
 - The activities and achievements of the Chapter were recognized by the Institute for Operations Research and the Management Sciences with the 2013 Cum Laude, 2014 Magna Cum Laude, 2015 Cum Laude, 2016 Magna Cum Laude INFORMS Student Chapter Annual Award (awarded to the strongest student chapters in the country)
 - Chapter featured in OR/MS tomorrow
 - Development of an Introduction to Healthcare Simulation module as part of the *Graduate Medical Education Scholars Program at the University of Michigan's Department of Emergency Medicine* (implemented in 2011, 2012, 2013, 2014 and 2016)
-

SELECTED AWARDS AND SCHOLARSHIPS

2017 American Urological Association Annual Meeting Best Poster Award in Moderated Session (National)

- Awarded by the American Urological Association for our work on “Personalized Decision Support Tool to Prevent Hospital Readmissions for Patients Treated with Radical Cystectomy” (done in collaboration with undergraduate students Shivani Joshi, Sarah Finley, Zhitong Xie and Benjamin Y. Li; PhD student Xiang Liu; former PhD student Dr. Jonathan Helm, PhD; Dr. Tudor Borza, MS, MD; Dr. Ted A. Skolarus, MPH, MD; Dr. Bruce L. Jacobs, MPH, MD; Dr. Heather S.L. Jim, PhD and Dr. Scott M. Gilbert, MD).

2017 Michigan Student Symposium for Interdisciplinary Statistical Sciences Best Poster Award (Institutional – Mentoring role)

- Awarded by the American Statistical Association for our work on “Projections of Non-Alcoholic Steatohepatitis Related Liver Transplantation Waitlist Additions.” (done in collaboration with PhD student Wesley Marrero; undergraduate students Jingyuan Wang and Justin Steuer; Dr. Neehar D Parikh, MD; Dr. David W Hutton, PhD and Dr. Eunshin Byon, PhD).

2017 Willie Hobbs Moore Aspire, Advance, Achieve Mentoring Award (Institutional)

- For formal and informal mentorship provided to students

2016 National Academy of Engineering's US Frontiers of Engineering Symposium (National)

- Targeted to 100 engineers from across the country representing the full range of engineering fields

2016 Production and Operations Management Society College of Healthcare Operations Management, Best Paper Award (National, open to international applications – Mentoring role)

- Awarded by the Production and Operations Management Society for our work on “Dynamic Personalized Monitoring and Treatment Control of Glaucoma” (done in collaboration with PhD student Pooyan Kazemian; former PhD student Dr. Jonathan Helm, PhD; Dr. Mark Van Oyen, PhD and Dr. Joshua Stein, MD)

2016 National Science Foundation CAREER Award (National)

- “CAREER: A Unified Methodology for Optimizing the Management of Chronic Diseases”

2015 Minority Issues Forum Student Poster Competition, Honorable Mention - the Institute for Operations Research and the Management Sciences (INFORMS) (National, open to international applications – Mentoring role)

- Awarded by the Minority Issues Forum for our work on “Policy Approximation for Optimal Treatment Planning” (done in collaboration with PhD student Wesley Marrero-Colon; former PhD student Dr. Gregory Schell, PhD; Dr. Jeremy Sussman, MD and Dr. Rodney Hayward, MD)

2015 IBM Service Science Best Student Paper Award, First Prize - INFORMS (National, open to international applications – Mentoring role)

- Awarded by the Service Science Section for our work on “Optimal Coinsurance Rates for a Heterogeneous Patient Population under Constraints on Inequality and Resources” (done in collaboration with former PhD student Dr. Gregory Schell, PhD; Dr. Jeremy Sussman, MD and Dr. Rodney Hayward, MD)

2015 IBM Service Science Best Student Paper Award, Finalist - INFORMS (National, open to international applications – Mentoring role)

- Awarded by the Service Science Section for our work on “Dynamic Personalized Monitoring and Treatment Control of Glaucoma” (done in collaboration with PhD student Pooyan Kazemian; former PhD student Dr. Jonathan Helm, PhD; Dr. Mark Van Oyen, PhD and Dr. Joshua Stein, MD)

2015 Murty Prize for the best research paper on optimization, First prize - Industrial and Operations Engineering (IOE) (Departmental – Mentoring role)

- Awarded by the IOE department for mentored work on “Dynamic personalized monitoring and treatment control of glaucoma” (done in collaboration with PhD student Pooyan Kazemian; former PhD student Dr. Jonathan Helm, PhD; Dr. Mark Van Oyen, PhD and Dr. Joshua Stein, MD)

2014 INFORMS Annual Meeting Decision Analysis Society (DAS) Practice Award competition, Finalist (National, open to international applications – Mentoring role)

- Awarded for our work on “Dynamic personalized monitoring and treatment control of chronic diseases with application to glaucoma”

2013 Young Participant with Most Practical Impact Award - International Conference on Operations Research organized by the German and the Dutch OR Society (International)

- Awarded as an “outstanding young researcher in the field of Operations Research for making an important contribution to the practice of OR”

2013 Lee Lusted Award for Quantitative Methods and Theoretical Developments, First Prize - Medical Decision Making (National, open to international applications – Mentoring role)

- Awarded to mentored student for our work on "Comparison of Control Algorithms for Scheduling Testing Visits”

2013 Lee Lusted Award for Quantitative Methods and Theoretical Developments, Finalist - Medical Decision Making (National, open to international applications – Mentoring role)

Awarded to mentored student for our work on "Logistic Regression with Filtered Data to Improve Progression Identification"

2013 Public Programs, Service and Needs Paper Competition, Honorary Mention (National, open to international applications)

- Awarded for our work on "Strategic Health Workforce Planning"

2013 Bonder Scholarship for Applied Operations Research in Health Services (National, open to international applications – Mentoring role)

- Awarded to mentored student for the greatest potential to make a significant contribution to the field of applied Operations Research in health

2012 Doing Good With Good OR, First Prize - INFORMS (National, open to international applications – Mentoring role)

- Awarded to mentored students for our work on "Dynamic Monitoring of Chronic Diseases"

2011 Health Economics Lee Lusted Finalist - Medical Decision Making (National, open to international applications – Mentoring role)

- Awarded to mentored student for our work on "Modeling Care Utilization Ratios to Guide Surge Responses for Non-Crisis events"

2010 George B. Dantzig Dissertation Award - Honorary Mention (National, open to international applications)

- Given for the best dissertation in any area of operations research and the management sciences that is innovative and relevant to practice

2009 Pierskalla Best Paper Award (National, open to international applications)

- Awarded for the best paper presented in a Health Applications Section sponsored session at INFORMS for our work modeling PSA dynamics

2006 Bonder Scholarship for Applied Operations Research in Health Services (National, open to international applications)

- Awarded by the Health Care Applications Section of INFORMS to the student with the greatest potential for making a significant contribution to the field of applied Operations Research in health

AWARDS AND SCHOLARSHIPS PRIOR TO 2006:

Itoko Muraoka Fellowship/UGF (National)

- Awarded to the top students pursuing a graduate degree in Canada

NSERC Postgraduate Scholarship D (National)

- Awarded to the top students pursuing a PhD degree in the natural sciences or engineering in Canada

NSERC Canadian Graduate Scholarship (National)

- Awarded to the top NSERC Post Graduate Scholarship applicants based on academic achievements and research ability and potential

Dean Earle D MacPhee Memorial Fellowship in Commerce and Business Administration (Institutional)

- Awarded for academic excellence during a doctoral program at the University of British Columbia

Supply Chain and Logistics Canada-Best Student Paper in British Columbia

- Awarded to the top paper in the field of supply chain in the province of British Columbia. This paper could not be published due to the confidentiality agreement signed with the company

Walter H Gage and Elsie M Harvey Education Abroad Scholarship (Institutional)

- Awarded to the top graduate students that participate in an exchange program

President's list (Institutional)

- Awarded to all students with a 4.00/4.00 GPA in the semester

University of Florida College of Engineering Scholarship (Institutional)

- Awarded to the top students in the department

GRANTS

NIH: R01EY026641

Personalized Forecasting of Disease Trajectory for Patients with Open Angle Glaucoma 2016-2021

\$2,883,323 (share in project budget: \$884,691)

Role: Co-Principal Investigator.

NSF: CMMI-1552545

CAREER: A Unified Methodology for Optimizing the Management of Chronic Diseases 2016-2021

\$500,000 (share in project budget: \$500,000)

Role: Principal Investigator.

MTRAC Kickstart Award: UM IR #5140

Monitoring Patients with Glaucoma Using a Novel Personalized Forecasting Tool

\$31,000 (entire budget will be used to support commercialization activities to bring algorithms into practice)

Role: Co-investigator

MCubed

Novel Framework to Forecast Supply and Demand of Liver Donors in the United States 2015-2016

\$60,000 (to be used to pay PhD students working on the project)

Role: Principal Investigator from IOE

Glaucoma Research Foundation

A Dynamic, Personalized Glaucoma Monitoring Decision Support Tool – 2014-2015

\$40,000 (used to pay PhD student working on the tool)

Role: Co-investigator

Rackham Graduate School

Industrial and Operations Engineering Faculty Allies Diversity Grant – 2013-2016

\$28,108 towards diversity initiatives in the department

Role: Principal Investigator

MCubed

Strategic Health Workforce Planning – 2013-2014

\$60,000 (share in project budget: \$60,000)

Role: Principal Investigator

Engineering Translational Research Fund

Patient Specific Modeling and Forecasting of Disease Progression – Awarded in 2012

- \$5,000 (share in project budget: \$5,000, to be shared with clinical collaborators)
- Role: Principal Investigator.

NSF: CMMI-1161439

Forecasting and Control Methodology for Monitoring of Chronic Diseases – 2012-2014

- \$280,000 (share in project budget: \$126,572)
- Role: Principal Investigator.

MICHR: Pilot Grant Program

Improving Monitoring of Glaucoma Patients – 2010-2011

- \$50,000 (share in project budget: \$50,000)
- Role: Principal Investigator. In collaboration with Dr. Joshua Stein, Ophthalmology.

RACKHAM:

Faculty Research Grant – 2010-2011

- \$52,173 (share in project budget: \$52,173)
- Role: Principal Investigator.

CIHR: New Emerging Team Grant—Access to Quality Cancer Care

Improving Access to Quality Cancer Care using Operations Research Methods – 2007-2012

- \$278,488/year (share in project budget: ~\$30,000)
- Role: Co-Investigator. Participated in the grant application process. This grant partly supported my dissertation research.

OTHER PROFESSIONAL EXPERIENCE

CENTRE FOR OPERATIONS EXCELLENCE (Vancouver, British Columbia)

Project Advisor, Provincial Health Services Authority (PHSA) – Contract, 2005

- Developed a methodology to analyze the flow of coronary artery disease patients through the cardiac care system

CENTRE FOR OPERATIONS EXCELLENCE (Vancouver, British Columbia)

Project Analyst, NorskeCanada – Contract, 2003

- Developed a linear programming model of the global distribution network of finished products
- Optimized the logistics system based on tradeoffs between time and cost

WORKSHOPS

- 2017 Leadership Academy
- 2016 (LIFT): Transition to Associate Professor Program
- 2016 Denice Denton Emerging Leaders Workshop
- 2016 Leveraging Group Work and Teams Workshop
- 2015 University of Michigan Women in Science & Engineering Leadership Retreat
- 2015 Spring 2015 NSF Grants Conference
- 2014 NIH Grant Proposal Workshop

- 2012 University of Michigan Teaching Circle on Large Engineering Courses
- 2011 INFORMS Teaching Effectiveness Colloquium
- 2010 NSF CAREER Proposal Writing Workshop
- 2010 Big Ten Women's Workshop
- 2010 IIE Junior Faculty Colloquium
- 2010 United for Sight Global Health Conference
- 2008 Models of Cancer and its Therapeutic Control: From Molecules to the Organism. Rocquencourt, France (Sponsored by MITACS and CEA-EDF-INRIA to attend this workshop)
- 2006 Workshop on Approximate Dynamic Programming. Cocoyoc, Mexico (Sponsored by NSF to attend this workshop)

SERVICE

University of Michigan

- CRLTE Advisory board (2015-present)
- IOE Faculty Search Committee (2015-present)
- IOE Department Graduate Program Committee (2010-present)
- Faculty Ally for Diversity in Graduate Education (2011-present)
- University of Michigan INFORMS Student Chapter Faculty Advisor (2012-present)
- IOE representative for NextProf Fall Future Workshop (main liaison: 2016, actively involved: 2012-2015)
- Diversity, Equity and Inclusion Faculty Liaison (2016-present)
- Participate in Graduate Diversity Forum (2016)
- CRLT-Engin Director Search Committee (2016)
- PDL preliminary exam coordinator (2014-2015)
- IOE Department Committee (2011)
- Review of MS Degree Requirements (Winter 2011)
- UROP Poster Judge (2011)
- Marshal, Commencement Ceremonies (2009, 2010, 2011, 2013, 2015, 2016)

Service to the profession

- Editorial Board: Operations Research for Healthcare
- Reviewer:
 - Operations Research
 - Management Science
 - MSOM
 - POMS
 - IIE Transactions
 - Journal of the Operational Research Society
 - IIE Transactions on Healthcare Systems Engineering
 - Omega, The International Journal of Management Science
- Treasurer, INFORMS Health Applications Society (2016-2017)
- INFORMS Ad-hoc Committee on Diversity (2015-2017)
- Health Systems Engineering Alliance, Member of the Board of Directors (2016-2017)

- INFORMS Minority Issues Forum, Early Career Award Judge (2016)
 - INFORMS Minority Issues Forum, Poster Competition Judge (2016)
 - Cluster Chair, INFORMS Healthcare, Healthcare Applications Society (2015)
 - Judge, POMS Healthcare Operations Mgmt Paper Competition (2015)
 - Secretary/treasurer Section on Public Programs, Services and Needs (2013, 2014)
 - Judge, INFORMS Pierskalla Paper Competition (2013)
 - Judge, INFORMS Healthcare Student Paper Competition (2013)
 - Member of the International Program Committee of the ORAHS Conference (2013)
 - Cluster Chair, INFORMS Healthcare Section on Public Programs, Services and Needs (2013)
 - Cluster Co-Chair, INFORMS Section on Public Programs, Services and Needs (2012)
 - Chaired Sessions at the INFORMS Annual Meetings (2010, 2011, 2012, 2014, 2015)
 - Council member, INFORMS Health Applications Society (2010)
 - Co-chair Data Mining and Health Informatics Workshop (2010)
 - Pierskalla Best Paper Competition Chair, INFORMS Health Applications Society (2010)
 - NSF Review Panels
-

AFFILIATIONS

- INFORMS MSOM
 - INFORMS Health Applications Society
 - INFORMS Section on Public Programs, Services and Needs
 - INFORMS Minority Issues Forum
 - POMS
 - Institute of Industrial Engineers
 - Society for Medical Decision Making
 - Association for Research in Vision and Ophthalmology
 - Canadian Operational Research Society
-

SKILLS

- **Computer:** SAS, R, NCSS, MATLAB, AMPL, ARENA, C⁺⁺, Java, HTML, Visual Basic
- **Language:** Fluent in reading, speaking and writing English, Spanish, and German