

Mathieu Bray

Statistics Leader / GSK / Greater Philadelphia Area

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Education

University of Michigan

Ann Arbor, MI, USA

PH.D. IN BIOSTATISTICS

2012 - 2019

- **Dissertation:** Advances in Methods, Algorithms and Software for Optimization and Simulation of Kidney Paired Donation Programs (Advisor: [Peter X-K. Song](#))

McGill University

Montreal, QC, Canada

B.SC. JOINT HONOURS IN STATISTICS AND COMPUTER SCIENCE

2009 - 2012

- **Distinction** (Top 25% of Graduating Class) / First Class Honours (CGPA above 3.5) / Dean's Honour List (2010-2011 & 2009-2010)

Experience

PROFESSIONAL EXPERIENCE

GSK

Collegetown, PA, USA

STATISTICS LEADER (PROMOTED; RESEARCH STATISTICS)

2023 - Present

PRINCIPAL STATISTICIAN (HIRED; RESEARCH STATISTICS)

2019 - 2023

- Collaborate with pharmaceutical research scientists to provide statistical input into the strategic planning and direction of pre-clinical projects at GSK.
- Design experiments, perform appropriate data analysis, and visualize and interpret results for a wide breadth of projects, ranging from small safety/efficacy studies with single endpoints, to high-dimensional multi-omic investigations.

ACADEMIC EXPERIENCE

University of Michigan School of Public Health - Kidney Epidemiology and Cost Center (KECC)

Ann Arbor, MI, USA

GRADUATE STUDENT RESEARCH ASSISTANT

2012-2018

- Investigated novel optimization strategies for kidney paired donation (KPD), under the supervision of [Peter X-K. Song](#) & [Jack \(John D.\) Kalbfleisch](#).
- Collaborated with the [Alliance for Paired Donation](#) (currently known as *Alliance for Paired Kidney Donation*) to test KPD strategies, and developed custom graphical user interface for optimization and management of KPD programs, leading to publications in clinical and statistical journals.

McGill University Health Centre - Neuroepidemiology Research Unit

Montreal, QC, Canada

ENDMS SUMMER STUDENT

2011

- Under the supervision of [Christina Wolfson](#), investigated patterns in general practitioner preferences in managing care for multiple sclerosis patients, presenting findings at a multiple sclerosis research forum and publishing results in a clinical journal.

McGill University - Department of Epidemiology, Biostatistics & Occupational Health

Montreal, QC, Canada

BIOSTATISTICS SUMMER INTERN

2010

- Under the supervision of [Erica E. M. Moodie](#), prepared a literature review on the relation between family responsibilities and gender to the productivity and career satisfaction of medical faculty, and assisted with the release of a software package for Optimal Dynamic Treatment Regimes.

CONSULTING

University of Michigan NCAA Div-I Men's Ice Hockey

Ann Arbor, MI, USA

VOLUNTEER STUDENT STATISTICAL CONSULTANT

2015-2018

- Under the supervision of [Evan Hall](#), Director of Hockey Operations (formerly, [L.J. Scarpace](#), currently Video Coordinator for NHL Detroit Red Wings), collected and managed individual player data via video tracking, as well as implemented simulations of full NCAA seasons, deriving insights on non-conference scheduling.

Committees

BFF5 - Fifth Bayesian, Fiducial & Frequentist Conference (May 6-9, 2018)

Ann Arbor, MI, USA

MEMBER, ORGANIZING COMMITTEE

2017 - 2018

- Responsible for coordinating with speakers and conference guests, including drafting and sending speaker invitations, as well as developing and maintaining the conference website.

MSSISS 2015 - Michigan Student Symposium for Interdisciplinary Statistical Sciences (March 20, 2015)

Ann Arbor, MI, USA

BIOSTATISTICS REPRESENTATIVE, ORGANIZING COMMITTEE

2014 - 2015

- Organized, advertised and hosted this student-led conference, including selecting speakers, judging the oral presentation competition, coordinating with the keynote speaker, and selecting the keynote speaker for the following year's event.

Distinctions

	Postgraduate Scholarship (Master's) PGS M - NSERC	2012-2013
Declined	Alexander Graham Bell Canada Graduate Scholarship (Master's) CGS M - NSERC	2012-2013
Declined	Bourse de Maitrise (Master's Scholarship) B1 - FQRNT (currently known as FRQ)	2012-2013
	endMS Summer Studentship Award - Multiple Sclerosis Society of Canada	2011
	Sir Edward Beatty Memorial Scholarship - McGill University	2011-2012
	J.W. McConnell Scholarship - McGill University	2009-2010

Skills

STATISTICAL EXPERTISE

- **Theoretical Statistics:** Probability & Distribution Theory, Statistical Inference, Large Sample Theory, Design of Experiments
- **Applied Statistics:** Linear Regression, Generalized Linear Models, Linear Mixed Models, Analysis of Repeated Measures, Categorical Data Analysis, Survival Analysis, Stochastic Processes, Penalized Regression, Bayesian Statistics
- **Novel Methodologies:** Data Mining, Machine Learning, Dimension Reduction, Classification, Clustering, Graphical Models, Causal Inference

TECHNICAL EXPERTISE

- **Extensive Experience:** R (including application development using Shiny), C++, Git/Github
- **Moderate Experience:** C, Java, MATLAB, Python, SAS, SQL

LANGUAGES

- **English** (written and oral) / **Français** (écrit et verbal)

Presentations

ORAL PRESENTATIONS

Vancouver, BC, Canada	JSM - Online Non-Negative Tensor Decomposition with Application to Kidney Paired Donation	2018
Ann Arbor, MI, USA	MSSISS - Online Non-Negative Tensor Decomposition with Application to Kidney Paired Donation	2018
Washington D.C., USA	ENAR - Assessing the Benefits of Multiple Incompatible Donors in Kidney Paired Donation	2017
Ann Arbor, MI, USA	MSSISS - Incorporating Candidates with Multiple Associated Incompatible Donors in Kidney Paired Donation	2016
Montreal, QC, Canada	endMS Rounds - General Practitioner Preferences in Managing Care for Multiple Sclerosis Patients	2011

POSTER PRESENTATIONS

Vancouver, BC, Canada	CASSIS - Non-Conference Scheduling in NCAA Div-I Men's Ice Hockey	2018
Seattle, WA, USA	ATC - Interactive Software for Simulation and Management of a Kidney Paired Donation Program	2018
Seattle, WA, USA	ATC - Gains from Joining Kidney Paired Donation with Several Incompatible Donors	2018
Boston, MA, USA	ATC - A Visualization Software Platform for Managing A Kidney Paired Donation Program	2016
Austin, TX, USA	ENAR - Incorporating Candidates with Multiple Associated Incompatible Donors in Kidney Paired Donation	2016
Ann Arbor, MI, USA	MSSISS - Incorporating Uncertainties and Contingencies in a Paired Donation Program	2014
Atlanta, GA, USA	ASN Kidney Week - Incorporating Uncertainties and Contingencies in a Paired Donation Program	2013

Publications

1. Vermillion MS, Saari N, Bray M, Nelson AM, Bullard RL, Rudolph K, Gigliotti AP, Brendler J, Jantzi J, Kuehl PJ, McDonald JD, Burgert ME, Weber W, Socoloski S, & Behm DJ. (2024). Effect of TRPV4 Antagonist GSK2798745 on Chlorine Gas-Induced Acute Lung Injury in a Swine Model. *International Journal of Molecular Sciences*, 25(1), 3949. <https://doi.org/10.3390/ijms25073949>
2. Posobiec LM, Hillegas AE, Baker A, Phadnis-Moghe AS, Maier CC, Stanislaus DJ, Bray M, & Price MA. (2021). GSK2245035, a TLR7 Agonist, Does Not Increase Pregnancy Loss in Cynomolgus Monkeys. *Journal of Reproductive Immunology*, 143, 103242. <https://doi.org/10.1016/j.jri.2020.103242>
3. Wang W, Rees MA, Leichtman AB, Song P XK, Bray M, Ashby VB, Shearon T, Whiteman A, & Kalbfleisch JD. (2021). Deceased Donors as Nondirected Donors in Kidney Paired Donation. *American Journal of Transplantation*, 21(1), 103–113. <https://doi.org/10.1111/ajt.16268>
4. Bray M, Wang W, Rees MA, Song P XK, Leichtman AB, Ashby VB, & Kalbfleisch JD. (2019). KPDGUI: An Interactive Application for Optimization and Management of a Virtual Kidney Paired Donation Program. *Computers in Biology and Medicine*, 108, 345–353. <https://doi.org/10.1016/j.combiomed.2019.03.013>
5. Wang W, Bray M, Song P XK, & Kalbfleisch JD. (2019). An Efficient Algorithm to Enumerate Sets with Fallbacks in a Kidney Paired Donation Program. *Operations Research for Health Care*, 20(1), 45–55. <https://doi.org/10.1016/j.orhc.2018.10.002>
6. Bray M, Wang W, Song P XK, & Kalbfleisch JD. (2018). Valuing Sets of Potential Transplants in a Kidney Paired Donation Network. *Statistics in Biosciences*, 10(1), 255–279. <https://doi.org/10.1007/s12561-018-9214-7>
7. Ashby VB, Leichtman AB, Rees MA, Song P XK, Bray M, Wang W, & Kalbfleisch JD. (2017). A Kidney Graft Survival Calculator that Accounts for Mismatches in Age, Sex, HLA, and Body Size. *Clinical Journal of the American Society of Nephrology*, 12(7), 1148–1160. <https://doi.org/10.2215/CJN.09330916>
8. Wang W, Bray M, Song P XK, & Kalbfleisch JD. (2017). A Look-Ahead Strategy for Non-Directed Donors in Kidney Paired Donation. *Statistics in Biosciences*, 9(2), 453–469. <https://doi.org/10.1007/s12561-016-9155-y>
9. Bray M, Wolfson C, Moore F, Zhu B, & Uniak J. (2016). General Practitioner Preferences in Managing Care of Multiple Sclerosis Patients. *Canadian Journal of Neurological Sciences*, 43(1), 142–148. <https://doi.org/10.1017/cjn.2015.239>
10. Bray M, Wang W, Song P XK, Leichtman AB, Rees MA, Ashby VB, Eikstadt R, Goulding A, & Kalbfleisch JD. (2015). Planning for Uncertainty and Fallbacks Can Increase the Number of Transplants in a Kidney Paired Donation Program. *American Journal of Transplantation*, 15(10), 2636–2645. <https://doi.org/10.1111/ajt.13413>