

BIOGRAPHICAL SKETCH

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NAME: Kent, David M.

eRA COMMONS USER NAME (credential, e.g., agency login): dmkent

POSITION TITLE: Director

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	Completion Date MM/YYYY	FIELD OF STUDY
State University of New York, Binghamton	B.S.	06/1986	Biology & Psychology
McGill University	M.D., C.M.	06/1991	Medicine
Cambridge Hospital/Harvard Medical School	Residency	06/1997	Internal Medicine
University of Michigan, School of Public Health/Robert Wood Johnson Clinical Scholars Program	Fellowship/ M.Sc.	06/2000	Clinical Research Design and Statistical Analysis

A. Personal Statement

I am Director of the Tufts Predictive Analytics and Comparative Effectiveness (PACE) Center, at the Institute for Clinical Research and Health Policy Studies (ICRHPS), Tufts Medical Center; Director of the Clinical and Translational Science (CTS) MS/PhD Program, at the Tufts Graduate School of Biomedical Sciences, Tufts University; and Professor of Medicine, Neurology, and CTS at Tufts University School of Medicine. Our main research interest at PACE is to better understand and address the limitations of using group-derived evidence as the basis for decision making in individuals. I am a clinician-methodologist with a broad background in clinical epidemiology with a focus on clinical prediction model (CPMs), individual patient data meta-analysis, and observational comparative effectiveness research. My applied research spans several fields, but is concentrated mostly in cardiovascular disease (especially stroke) and diabetes. I am currently PI of several grants, including a R01 NIH comparative effectiveness project which examines silent brain infarction through natural language processing and big data, 3 PCORI grants (plus a just completed one-in-the-nation PCORI Predictive Analytics Resource Center (PARC) grant, now completing a demonstration project [SCOPE]), and a Greenwall Foundation grant that looks at fairness concerns in predictive algorithms. I have uninterrupted research funding from the NIH/NINDS since 2003 and from PCORI since 2012. In addition, a considerable portion of my time is spent educating and mentoring future clinical researchers, as Director of the CTS MS/PhD Program, Professor of Medicine at the Tufts University Graduate School of Biomedical Sciences, and Director/PI of our TL1-funded Training Program. I have mentored/co-mentored approximately 60 research fellows/trainees in the past including many nephrology fellows over the last decade.

Ongoing and recently completed projects that I would like to highlight include:

1TL: 1TR002546 (NIH/NCATS)
 Kent (PI)
 05/01/2018 – 04/30/2023
 Tufts Clinical and Translational Science Institute- Training Program

ME-1606-35555 (PCORI)

Kent (PI)

03/01/2017 – 10/31/2022

How Well Do Clinical Prediction Models (CPMs) Validate? A Large-Scale Evaluation of Cardiovascular Clinical Prediction Models, now completing a Covid-19 enhancement project

R01-NS102233 (NIH)

Kent (PI)

06/01/2017 – 5/31/2021

Enabling Comparative Effectiveness Research in Silent Brain Infarction Through Natural Language Processing and Big Data

SA.Tufts.PARC.OCSO.2018.01.25 (PCORI)

Kent (PI)

02/01/2018 – 01/02/2020

Predictive Analytics and Treatment Effect Heterogeneity (PATH)

Selected articles with mentees underlined:

1. Kumar V, Cohen JT, van Klaveren D, Soeteman DI, Wong JB, Neumann PJ, **Kent DM**. Risk-Targeted Lung Cancer Screening: A Cost-Effectiveness Analysis. *Annals of Internal Medicine*. 2018 Feb 6;168(3):161-169. PubMed PMID: 29297005. PubMed Central PMCID: [PMC6533918](https://pubmed.ncbi.nlm.nih.gov/PMC6533918/).
2. Upshaw JN, Konstam MA, Klaveren Dv, Noubary F, Huggins GS, **Kent DM**. Multistate Model to Predict Heart Failure Hospitalizations and All-Cause Mortality in Outpatients With Heart Failure With Reduced Ejection Fraction: Model Derivation and External Validation. *Circ Heart Fail*. 2016 Aug;9(8)PubMed PMID: 27514751; PubMed Central PMCID: [PMC5328587](https://pubmed.ncbi.nlm.nih.gov/PMC5328587/).
3. Wessler BS, Lai Yh L, Kramer W, Cangelosi M, Raman G, Lutz JS, **Kent DM**. Clinical Prediction Models for Cardiovascular Disease: Tufts Predictive Analytics and Comparative Effectiveness Clinical Prediction Model Database. *Circ Cardiovasc Qual Outcomes*. 2015 Jul;8(4):368-75. PubMed PMID: 26152680; PubMed Central PMCID: [PMC4512876](https://pubmed.ncbi.nlm.nih.gov/PMC4512876/).
4. Alsheikh-Ali AA, Thaler DE, **Kent DM**. Patent foramen ovale in cryptogenic stroke: incidental or pathogenic?. *Stroke*. 2009 Jul;40(7):2349-55. PubMed PMID: 19443800; PubMed Central PMCID: [PMC2764355](https://pubmed.ncbi.nlm.nih.gov/PMC2764355/).

B. Positions, Scientific Appointments, and Honors

1990 - 1991 Faculty Scholar, McGill University, Faculty of Medicine
1991 - 1991 University Scholar, McGill University, Faculty of Medicine
1991 - 1992 Internship, Carney Hospital, Department of Internal Medicine, Boston, MA
1992 - 1994 Medical Director, MCI-Cedar Junction, Walpole, MA (Max. Security State Prison), Emergency Medical Association, Dedham, MA
1994 - 1994 Medical Officer, Medecins Sans Frontieres (Winner of 1999 Nobel Peace Prize), Central Bosnia
1994 - 1996 Residency, Internal Medicine, The Cambridge Hospital, Cambridge, MA
1994 - 1997 Clinical Fellow, Harvard Medical School, Cambridge, MA
1996 - 1997 Chief Medical Resident, The Cambridge Hospital, Cambridge, MA
1997 - 1999 Robert Wood Johnson Clinical Scholars Program, University of Michigan Medical School
1998 "Lee Lusted Award" for best research presentation (Second Prize), Society for Medical Decision Making, National Meeting, Cambridge, MA
1999 "Trainee Award" for best research presentation, Midwest Regional Society for General Internal Medicine Meeting, Chicago, IL
2000 Tufts University Faculty Recognition Award, Tufts University School of Medicine, Tufts University
2002 - 2007 Assistant Professor of Clinical Research, Tufts Graduate School of Biomedical Sciences, Tufts University
2003 - 2003 Pfizer Scholar in Clinical Epidemiology, Pfizer Inc

2005 - 2010 Associate Director, Clinical Research/Clinical and Translational Science MS/PhD Graduate Program, Tufts Graduate School of Biomedical Sciences, Tufts University

2007 - 2014 Associate Professor of Medicine, Tufts University School of Medicine

2007 - 2014 Associate Professor of Clinical Research, Tufts Graduate School of Biomedical Sciences, Tufts University

2008 - 2010 Director, Tufts Predictive Medicine Component, Tufts-CTSI

2008 - 2012 Director, Tufts K12 Program, Tufts-Clinical and Translational Science Institute (Tufts-CTSI), Boston, MA

2010 - Director, Clinical and Translational Science Graduate Program, Tufts Graduate School of Biomedical Sciences, Tufts University

2010 - 2012 Director, KM1 Comparative Effectiveness Program Director, Tufts-CTSI

2011 - 2014 Associate Professor of Neurology, Tufts University

2013 - Director, Tufts Predictive Analytics and Comparative Effectiveness (PACE) Center

2013 - Director, TL1 Comparative Effectiveness Training Program (Predoctoral and Post Doctoral), Tufts Graduate School of Biomedical Sciences, Tufts University School of Medicine

2013 - Steering Committee, Determinants and Consequences of Personalized Health Care and Prevention, NIH (RFA-RM-12-024)

2014 - Professor of Medicine, Tufts University School of Medicine

2014 - Professor of Clinical Research, Tufts Graduate School of Biomedical Sciences, Tufts University School of Medicine

2014 - Professor of Neurology, Tufts University School of Medicine

2015 - Committee Member, Scientific Advisory Board, Optum Labs, Cambridge, MA

2015- Member, Patient-Centered Outcomes Research Institute (PCORI) Advisory Panel on Clinical Trials Post-Award Expert Subcommittee

2018- Member, ClinGen Complex Disease Working Group, Clinical Genome Resource Program (NIH)

2019 Fellow, American Heart Association (FAHA)

2020- Member, Data & Safety Monitoring Committee, Alteplase Compared to Tenecteplase (AcT) RRCT

1. C. Contributions to Science

I am Director of the Tufts Predictive Analytics and Comparative Effectiveness (PACE) Center, at the Institute for Clinical Research and Health Policy Studies, Tufts Medical Center. My principal research interest is in the clinical importance of outcome-risk and treatment-effect heterogeneity in observational studies and clinical trials. Below are contributions I have made to this area, both methodological and applied, in addition to those listed above in the personal statement.

- a. **Kent DM**, Paulus JK, van Klaveren D, D'Agostino R, Goodman S, Hayward R, Ioannidis JPA, Patrick-Lake B, Morton S, Pencina M, Raman G, Ross JS, Selker HP, Varadhan R, Vickers A, Wong JB, Steyerberg EW. The Predictive Approaches to Treatment effect Heterogeneity (PATH) Statement. *Annals of Internal Medicine*. 2020 Jan 7;172(1):35-45. doi: 10.7326/M18-3667. PubMed Central PMCID: [PMC7531587](https://pubmed.ncbi.nlm.nih.gov/PMC7531587/).
- b. **Kent DM**, Steyerberg E, van Klaveren D. Personalized evidence based medicine: predictive approaches to heterogeneous treatment effects. *BMJ* 2018;363;k4245. PubMed Central PMCID: [PMC6889830](https://pubmed.ncbi.nlm.nih.gov/PMC6889830/).
- c. **Kent DM**, Rothwell PM, Ioannidis JP, Altman DG, Hayward RA. Assessing and reporting heterogeneity in treatment effects in clinical trials: a proposal. *Trials*. 2010 Aug 12;11:85. PubMed PMID: 20704705; PubMed Central PMCID: [PMC2928211](https://pubmed.ncbi.nlm.nih.gov/PMC2928211/).
- d. **Kent DM**, Nelson J, Dahabreh IJ, Rothwell PM, Altman DG, Hayward RA. Risk and treatment effect heterogeneity: re-analysis of individual participant data from 32 large clinical trials. *Int J Epidemiol*. 2016 Jul 3; PubMed PMID: 27375287. PubMed Central PMCID: [PMC5841614](https://pubmed.ncbi.nlm.nih.gov/PMC5841614/).

2. In addition to the methodologic contributions above, I have focused my applied work on the area of cardiovascular disease and stroke. The Risk of Paradoxical Embolism (RoPE) Project used a risk modeling approach to help select patients with cryptogenic stroke who might be most likely to benefit from patient

foramen ovale (PFO) closure. This project has been very influential in helping doctors determine which cryptogenic strokes might have been caused by a PFO and might benefit from mechanical closure.

- a. **Kent DM**, Dahabreh IJ, Ruthazer R, Furlan AJ, Reisman M, Carroll JD, Saver JL, Smalling RW, Jüni P, Mattle HP, Meier B, Thaler DE. Device Closure of Patent Foramen Ovale After Stroke: Pooled Analysis of Completed Randomized Trials. *J Am Coll Cardiol*. 2016;67(8):907-17. PubMed PMID: 26916479; PubMed Central PMCID: [PMC4769377](#).
 - b. **Kent DM**, Dahabreh IJ, Ruthazer R, Furlan AJ, Weimar C, Serena J, Meier B, Mattle HP, Di Angelantonio E, Paciaroni M, Schuchlenz H, Homma S, Lutz JS, Thaler DE. Anticoagulant vs. antiplatelet therapy in patients with cryptogenic stroke and patent foramen ovale: an individual participant data meta-analysis. *Eur Heart J*. 2015;36(35):2381-9. PubMed PMID: 26141397; PubMed Central PMCID: [PMC4568404](#).
 - c. **Kent DM**, Ruthazer R, Weimar C, Mas JL, Serena J, Homma S, Di Angelantonio E, Di Tullio MR, Lutz JS, Elkind MS, Griffith J, Jaigobin C, Mattle HP, Michel P, Mono ML, Nedelchev K, Papetti F, Thaler DE. An index to identify stroke-related vs incidental patent foramen ovale in cryptogenic stroke. *Neurology*. 2013;81(7):619-25. PubMed PMID: 23864310; PubMed Central PMCID: [PMC3775694](#).
 - d. **Kent DM**, Thaler DE. The Risk of Paradoxical Embolism (RoPE) Study: developing risk models for application to ongoing randomized trials of percutaneous patent foramen ovale closure for cryptogenic stroke. *Trials*. 2011;12:185. PubMed PMID: 21794121; PubMed Central PMCID: [PMC3170216](#).
3. Prior to my work in PFO and cryptogenic stroke, I was Principal Investigator of the Stroke-Thrombolytic Predictive Instrument (Stroke-TPI) Project. This study examined factors that would help select treatment favorable approaches for thrombolytic therapy in acute ischemic stroke. We recently revised this predictive instrument for testing in a multi-center pragmatic trial.
- a. **Kent DM**, Ruthazer R, Decker C, Jones PG, Saver JL, Bluhmki E, Spertus JA. Development and validation of a simplified Stroke-Thrombolytic Predictive Instrument. *Neurology*. 2015;85(11):942-9. PubMed PMID: [26291280](#); PubMed Central PMCID: [PMC4567461](#).
 - b. **Kent DM**, Ruthazer R, Selker HP. Are some patients likely to benefit from recombinant tissue-type plasminogen activator for acute ischemic stroke even beyond 3 hours from symptom onset? *Stroke*. 2003;34:464-467. PubMed PMID: [12574561](#).
 - c. **Kent DM**, Hill MD, Ruthazer R, Coutts SB, Demchuk AM, Dzialowski I, Wunderlich O, von Kummer R. "Clinical-CT mismatch" and the response to systemic thrombolytic therapy in acute ischemic stroke. *Stroke*. 2005;36(8):1695-9. PubMed PMID: [16002756](#).
 - d. **Kent DM**, Selker HP, Ruthazer R, Bluhmki E, Hacke W. The stroke-thrombolytic predictive instrument: a predictive instrument for intravenous thrombolysis in acute ischemic stroke. *Stroke*. 2006; 37(12):2957-62. PubMed PMID: [17068305](#).
4. I have directed the Clinical and Translational Science MS/PhD Graduate Program of the Graduate School of Biomedical Science and the Tufts CTSI for a decade. In this capacity, I have had the privilege of providing research mentorship for dozens of fellows across various clinical specialties. I have also directed the KM Program in Comparative Effectiveness Research Methods, and currently I direct the TL1 program. I teach Introduction to Clinical Care Research, Study Design, and Predictive Modeling. My research focuses methodologically on risk prediction and heterogeneity of treatment effect. Below are additional examples of student projects that I have mentored, emphasizing CVD and risk modeling. (Mentees are underlined.)
- a. Kumar V, Cohen JT, van Klaveren D, Soeteman DI, Wong JB, Neumann PJ, **Kent DM**. Risk-Targeted Lung Cancer Screening: A Cost-Effectiveness Analysis. *Annals of Internal Medicine*. 2018 Feb 6;168(3):161-169. PubMed PMID: 29297005. PubMed Central PMCID: [PMC6533918](#).
 - b. Upshaw JN, Konstam MA, Klaveren Dv, Noubary F, Huggins GS, **Kent DM**. Multistate Model to Predict Heart Failure Hospitalizations and All-Cause Mortality in Outpatients With Heart Failure With Reduced Ejection Fraction: Model Derivation and External Validation. *Circ Heart Fail*. 2016 Aug;9(8)PubMed PMID: 27514751; PubMed Central PMCID: [PMC5328587](#).
 - c. Wessler BS, Lai Yh L, Kramer W, Cangelosi M, Raman G, Lutz JS, **Kent DM**. Clinical Prediction Models for Cardiovascular Disease: Tufts Predictive Analytics and Comparative Effectiveness Clinical

Prediction Model Database. Circ Cardiovasc Qual Outcomes. 2015 Jul;8(4):368-75. PubMed PMID: 26152680; PubMed Central PMCID: [PMC4512876](#).

- d. [Alsheikh-Ali AA](#), Thaler DE, **Kent DM**. Patent foramen ovale in cryptogenic stroke: incidental or pathogenic?. Stroke. 2009 Jul;40(7):2349-55. PubMed PMID: 19443800; PubMed Central PMCID: [PMC2764355](#).

Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/david.kent.1/bibliography/public/>