

# Daniel (Dan) J. Kats

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## EDUCATION

**Brandeis University**, Waltham, MA

Bachelor of Science in Biochemistry

May 2016

- Summa cum laude with high honors, GPA 3.85
- Thesis: “Inosine 5'-monophosphate dehydrogenase: A collection of mysterious binding sites and regulation”

**Case Western Reserve University**, Cleveland, OH

Doctor of Medicine

May 2020

- With Honors and Distinction in Research
- Thesis: “Lung cancer risk stratification, Down syndrome, and epileptic spasms: A journey through informatics, healthcare disparities, and quality improvement”

## POSTDOCTORAL TRAINING

**Massachusetts General Hospital for Children**, Boston, MA

Resident Physician, Pediatrics

June 2020 – June 2023

## HONORS AND AWARDS

- MassGeneral Hospital for Children Teaching Award, PGY-1 June 2021
- American Thoracic Society Abstract Scholarship May 2019  
(see BIBLIOGRAPHY #13, 16, 17, 18)
- Phi Beta Kappa honor society May 2016
- NIH Computational Neuroscience Training Fellowship (R90DA033463) May 2014 – May 2016

## TEACHING

**Case Western Reserve University School of Medicine**, Cleveland, OH

Pediatric Clerkship

March – April 2020

- Re-organized the third year core clerkship curriculum into an online format to be compatible with the COVID-19 pandemic
- Designed a “Mock Wards Day,” in which students pre-rounded on a panel of virtual patients, presented, and dealt with simulated emergent clinical situations

## RESEARCH EXPERIENCE

**Amoxicillin-clavulanate Dosing Calculator**, MassGeneral Hospital, Boston, MA

Co-Principal Investigator (Co-PI: Iman Moawad, PharmD, BCPPS)

May 2021 – Present

- Created a dosing calculator to assist clinicians in prescribing amoxicillin-clavulanate by ensuring proper dosing of both component drugs

**Down Syndrome Program**, Massachusetts General Hospital *for* Children, Boston, MA

Co-Investigator (PI: Brian Skotko, MD, MPP)

June 2020 – Present

Research Assistant (PI: Brian Skotko, MD, MPP)

October 2018 – June 2020

- Project: World map of quality of life for people with Down syndrome
  - Co-led a group of international Down syndrome experts to create the first worldwide quality of life survey for people with Down syndrome (that could be adapted to all groups of developmental/intellectual disabilities)
- Project: Literature review of infantile spasms in Down syndrome
  - Publication: see BIBLIOGRAPHY #2
- Project: Interviews with parents of children with Down syndrome and infantile spasms
  - Publication: see BIBLIOGRAPHY #3

**Clinical Informatics**, The MetroHealth System, Cleveland, OH

Researcher (PI: Yasir Tarabichi, MD, MSCR)

May 2017 – July 2019

- Project: The effects of smoking history variability in electronic health records (EHRs) on the ordering of lung cancer screening tests
  - Publications: see BIBLIOGRAPHY #1, 4, 5
  - Presentations: see BIBLIOGRAPHY #13, 14, 15, 16, 17, 18, 19
- Project: Determining the optimal duration of benzodiazepine treatment for alcohol withdrawal to avoid benzodiazepine-related delirium

**Hedstrom Laboratory**, Brandeis University, Waltham, MA

Undergraduate Researcher (PI: Lizbeth Hedstrom, PhD)

September 2013 – May 2016

Computational Neuroscience Fellow

May 2014 – May 2016

- Project: Determining the significance of interactions among inosine 5'-monophosphate dehydrogenase (IMPDH), RNA polymerase, and ribosomes in *Escherichia coli*
- Designed and implemented method of *in situ* chromosomal mutations without using biomarkers or scars (in collaboration with [Lovett Laboratory](#))
- Designed and wrote Python scripts to analyze IC<sub>50</sub> data of hundreds of inhibitors used with IMPDH from different organisms
  - Goal: Find quick, easy, and cheap way to functionally categorize previously unused strains of IMPDH by using a small set of inhibitors
  - Developed method to reduce entire set of inhibitors to a small representative subset
  - Found drug outliers
  - Visualized data to find patterns, drugs/enzymes of interest

**BIBLIOGRAPHY****Peer-Reviewed**

1. **Kats, D.J.**, Adie, Y., Tlimat, A., Greco, P.J., Kaelber, D.C., Tarabichi, Y.. Assessing Different Approaches to Leveraging Historical Smoking Exposure Data to Better Select Lung Cancer Screening Candidates: A Retrospective Validation Study. *Nicotine Tob Res.* 2020.
2. **Kats, D.J.**, Roche, K.J., Skotko, B.G. Epileptic Spasms in Individuals with Down Syndrome: A Review of the Current Literature. *Epilepsia Open.* 2020, 5: 344–353.

3. **Kats, D.J.**, Patsiogiannis, V., Skotko, B.G. Epileptic Spasms in Patients with Down Syndrome: Experiences from Caregivers. *J Child Neurol.* 2020, 35(12): 813–819.
4. Adie, Y., **Kats, D.J.**, Tlimat, A., Perzynski, A., Dalton, J., Gunzler, D., Tarabichi, Y. Neighborhood Disadvantage and Lung Cancer Incidence in Ever-Smokers at a Safety-Net Healthcare System: A Retrospective Study. *CHEST.* 2020, 157(4): 1021–1029.
5. Tarabichi, Y., **Kats, D.J.**, Kaelber, D.C., Thornton, J.D. The Impact of Fluctuations in Pack-Year Smoking History in the Electronic Health Record on Lung Cancer Screening Practices. *CHEST.* 2018, 153(2): 575–578.

### Lectures/Workshops

6. [Local] **Kats, D.J.** Clinical Hospital Jobs. Boston International Newcomers Academy. Boston, MA. November 2021.
7. [Local] **Kats, D.J.** A Day in the Life of a Resident Physician. Boston International Newcomers Academy. Boston, MA. November 2021.
8. [Local] **Kats, D.J.** Human Papillomavirus. Boston International Newcomers Academy. Boston, MA. May 2021.
9. [Hospital] **Kats, D.J.**, Miozzo, P., Kung, E. Hospitalist Journal Club. Massachusetts General Hospital *for* Children. Boston, MA. May 2021.
10. [Hospital] **Kats, D.J.**, Miozzo, P., Schwartz, K., Kao, A. Hospitalist Journal Club. Massachusetts General Hospital *for* Children. Boston, MA. April 2021.
11. [Hospital] **Kats, D.J.**, Zanger, K., Vakharia, J., Misra, M. Chief of Service: 14 year old with growth restriction and pituitary mass. Massachusetts General Hospital *for* Children. Boston, MA. 2021.
12. [National] **Kats, D.J.**, Mieso, B., Singh, M., Gullett, H., Koopman Gonzalez, S. Patient Navigation: Pre-Clinical Medical Students Experiencing Longitudinal Patient Relationships. Accelerating Change in Medical Education Consortium Student-Led Conference on Health Systems Science; Hershey, PA. 2018.

### Oral Presentations

13. [International] **Kats, D.J.**, Adie, Y., Tlimat, A., Tarabichi, Y. Providers at an Academic Safety-Net Hospital System Tend to Refer Patients for Lung Cancer Screening Based on Patient Risk, but Demographic Disparities Persist. American Thoracic Society International Conference; Dallas, TX. 2019.
14. [Local] **Kats, D.J.**, Tarabichi, Y., Kaelber, D.C., Thornton, J.D. The Impact of Smoking History EHR Fluctuations on Lung Cancer Screening Practices. Lepow Day; Cleveland, OH. 2017.

### Poster Presentations

15. [International] Tlimat, A., O. Adeoye, **Kats, D.J.**, Tarabichi, Y. Could Patients at a Safety-Net Healthcare Systems Be Too Sick to Be Screened for Lung Cancer? American Thoracic Society International Conference; Philadelphia, PA. 2020.
16. [International] **Kats, D.J.**, Tlimat, A., Adie, Y., Tarabichi, Y. Can Historical Electronic Health Record Smoking Data Be Leveraged to Improve the Selection of Patients for

- Lung Cancer Screening? American Thoracic Society International Conference; Dallas, TX. 2019.
17. [International] Adie, Y., Tlimat, A., **Kats, D.J.**, Perzynski, A., Tarabichi, Y. Neighborhood Disadvantage and Lung Cancer Incidence in an Electronic Health Record Cohort. American Thoracic Society International Conference; Dallas, TX. 2019.
  18. [International] Tlimat, A., **Kats, D.J.**, Perzynski, A., Tarabichi, Y. A Temporal Analysis of Variation in Smoking Intensity in the Cleveland Area by Strata of Neighborhood Socioeconomic Deprivation. American Thoracic Society International Conference; Dallas, TX. 2019.
  19. [International] **Kats, D.J.**, Thornton, J.D., Kaelber, D.C., Tarabichi, Y. Structured Smoking Exposure Variability in the Electronic Health Record Hurts Lung Cancer Screening Practices. American Thoracic Society International Conference; San Diego, CA. 2018.
  20. [Local] **Kats, D.J.**, Gollapalli, D., Dang, Y., Hedstrom, L. Moonlighting Interactions of IMPDH Affect *Escherichia coli* Growth. SciFest V; Waltham, MA. 2015. (Poster #2015.421)
  21. [Local] **Kats, D.J.**, Gollapalli, D., Dang, Y., Hedstrom, L. Moonlighting Interactions of *Escherichia coli* IMPDH. SciFest IV; Waltham, MA. 2014. (Poster #2014.311)

#### Non-Peer-Reviewed

22. **Kats, D.J.**, Smith, M. Autoimmune Neutropenia. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
23. **Kats, D.J.**, Smith, M. Bleeding Disorders. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
24. **Kats, D.J.**, Smith, M. Immune Thrombocytopenic Purpura. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
25. **Kats, D.J.**, Smith, M. Inherited Thrombophilia. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
26. **Kats, D.J.**, Smith, M. Iron Deficiency. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
27. **Kats, D.J.**, Smith, M. Thalassemia Trait. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
28. **Kats, D.J.**, Smith, M. von Willebrand Disease. Massachusetts General Hospital *for* Children Hematology & Oncology Patient Education. 2021.
29. **Kats, D.J.**, Lie, S. Sexually Transmitted Infections. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
30. **Kats, D.J.** EKG Basics. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
31. **Kats, D.J.** Arrhythmias: Bradycardia. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
32. **Kats, D.J.** Arrhythmias: Wolff-Parkinson White. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.

33. **Kats, D.J.** Cardiac Infection and Inflammation: Kawasaki Disease. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
34. **Kats, D.J.**, Olshan, K. Constipation. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
35. Diacovo, N., **Kats, D.J.** Nausea. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
36. **Kats, D.J.** COVID-19. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
37. **Kats, D.J.** Multisystem Inflammatory Syndrome in Children. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
38. **Kats, D.J.** Multi-Drug Resistant Organisms. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
39. **Kats, D.J.** Table of Common Infections. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
40. **Kats, D.J.** Altered Mental Status. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
41. **Kats, D.J.** Examination of the Newborn. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
42. **Kats, D.J.** Hyperbilirubinemia of the Newborn. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
43. **Kats, D.J.** Pain Management: Opioids. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
44. **Kats, D.J.** Other Symptom Management: Nausea, Constipation, Dyspnea. Massachusetts General Hospital *for* Children Resource Book Pediatric Housestaff Manual. 2021.
45. **Kats, D.J.** Lung cancer risk stratification, Down syndrome, and epileptic spasms: A journey through informatics, healthcare disparities, and quality improvement [MD thesis]. Cleveland, OH: Case Western Reserve University School of Medicine. 2020.
46. **Kats, D.J.** Inosine 5'-monophosphate dehydrogenase: A collection of mysterious binding sites and regulation [BS honors thesis]. Waltham, MA: Brandeis University. 2016.

## INSTITUTIONAL SERVICE

**Pediatric Rapid Response Team Quality Improvement Project**, Massachusetts General Hospital *for* Children  
Member

December 2021 – Present

**Housestaff Quality & Patient Safety Committee**, Massachusetts General Hospital Pediatrics Representative

August 2021 – Present

- Nominated by the Pediatrics Program Director, Quality Chair, and Chief Residents

**Wards Redesign Process Improvement**, Massachusetts General Hospital *for* Children PGY-1 Representative

March – August 2021

- Represented the PGY-1 residents' interests during the Wards Redesign improvement project together with Nursing, PT, OT, SLP, Pharmacy, and Case Management

**Advocacy Committee**, Massachusetts General Hospital *for* Children

Member

November 2020 – June 2021

- Organized residency-wide advocacy events, culminating in [Residents and Fellows Day at the State House](#)

**Interpreter Accessibility**, Massachusetts General Hospital

November 2020 – Present

- Worked with Interpreter Services, the Chief Medical Information Officer, and the Director of Health Information Services to make interpreters easier to access for patient-facing clinicians
- Was the clinician lead for implementing and trialing a new interpreter phone app to expedite connecting with an interpreter
- Created a QR code-based way to bypass the phone tree to expedite acquiring interpreters for patients ([www.katsmd.com/ipop](http://www.katsmd.com/ipop))

**Advocacy Cause of the Month**, Massachusetts General Hospital *for* Children

Organizer

November – February 2020

- Planned the “Reproductive Health and Teen Pregnancy” Cause of the Month
- Organized a noon conference: “The History, Current Status, & Future Directions of Family Planning/Abortion Laws in Massachusetts” by Jen Childs-Roshak, MD, MBA

**Student Committee on Admissions**, Case Western Reserve University School of Medicine

Co-Chair

January 2017 – January 2018

- Coordinated admissions interviews, tours, and lunches
- Attended Admissions Committee Meetings as a non-voting participant

**Peer Handoff**, Case Western Reserve University School of Medicine

Volunteer

July 2017

- Led small and large group sessions during new student orientation

**Diversity Planning Committee**, Case Western Reserve University School of Medicine

Member

June – July 2017

- Helped plan diversity training for new student orientation

**LEADERSHIP AND COMMUNITY SERVICE****Boston International Newcomers Academy**, Boston, MA

Volunteer

May, November 2021

- Lecture: Clinical hospital jobs (see BIBLIOGRAPHY #6)
- Lecture: A day in the life of a resident physician (see BIBLIOGRAPHY #7)
- Lecture: Human papillomavirus infection: disease and vaccine (see BIBLIOGRAPHY #8)

**Prison Book Program**, Quincy, MA

Volunteer

October 2019

- Selected and packaged books for prisoners around the U.S., according to their requests

**Southwest Corridor Park Conservancy**, Boston, MA

Volunteer

October 2019

- Cleaned Claremont Park

**Youth Build Boston**, Roxbury, MA

Volunteer

April 2019

- Tutored out-of-school youth studying for a high school equivalency exam

**American Red Cross of Eastern Massachusetts Food Pantry**, Boston, MA

Volunteer

December 2018

**X-Cel Education**, Dorchester, MA

Volunteer

December 2018

- Tutored math to adults studying for a high school equivalency exam

**Greater Boston Food Bank**, Boston, MA

Volunteer

December 2018

**Tech Goes Home**, Dorchester and Roxbury, MA

Volunteer

December 2018 – January 2019

- Assisted adults learning fundamental computer skills

**Fairfax Four Corner Program**, Cuyahoga County Juvenile Detention Center

Coordinator

September 2018 – October 2018

- Helped develop a community service program in which medical students run weekly lessons for children in the Juvenile Detention Center as a formal class through the Cleveland Metropolitan School District
- Based on Maslow's Hierarchy of Needs, the curriculum first guides students through understanding how they entered the juvenile justice system; then, how they can examine and modify their behaviors to prevent future negative encounters with the justice system

**Sex Education**, Cuyahoga County Juvenile Detention Center

Volunteer

October 2017 – February 2018

- Taught a three-day sex education curriculum to children in a juvenile detention center
- Topics covered: reproductive anatomy, hygiene, sexually transmitted infections, contraception, consent, and healthy relationships

**Anatomy Camp**, Case Western Reserve University School of Medicine

Volunteer

October – November 2017

- Taught Cleveland middle and high school students general principles of biology related to the healthcare field

**Student Run Health Clinic**, Case Western Reserve University School of Medicine

Volunteer

June 2017 – February 2018

- Junior Clinician: worked with a fourth year medical student to perform the initial history and physical on patients, followed by presenting to the attending
- Case Manager: worked with a social work student to assess patients' social needs prior to handing off to the Junior and Senior Clinicians
- Front Desk: registered patients for appointments



**Doc Opera (Fundraiser)**, Case Western Reserve University School of Medicine

Dancer (1 performance) August – December 2017

Dancer (3 performances) August – December 2016

- Doc Opera is a fundraiser for the Student Run Health Clinic and consists of dances and skits entirely performed by medical students
- Danced in three performances during 2016: cha-cha, Bollywood fusion, and hip-hop
- Danced in one performance during 2017: fusion dance consisting of Bhangra, Bharatanatyam, and Kathak

**Sex Education**, American Medical Women's Association

Volunteer November 2016 – December 2017

- Taught a three-day sex education curriculum to underserved Cleveland middle school students
- Topics covered: reproductive anatomy, sexually transmitted infections, contraception, and consent
- Helped incorporate education on consent into the curriculum

**SPECTRUM, Waltham Group**, Brandeis University, Waltham, MA

Coordinator November 2014 – May 2016

Volunteer September 2012 – November 2014

- Ran weekly tutoring, mentoring, and playgroup (with parent social group) programs
- Received [Waltham Special Education Parent Advisory Council's](#) Rising Star (2015) and Kelly Beaumont-Mazzarini Inclusion (2016) awards
- Received [Greater Waltham Arc's](#) "Rags" LaCava Community Service Award (2015)
- Planned and hosted annual educational events about developmental disabilities
- Managed nonprofit budget (over \$6,000)
- Grew volunteer base from thirty to sixty members

**SKILLS**

- Programming in R, Python, Java, and MATLAB
- Basic web development: HTML, CSS, and JavaScript
- Document typesetting:  $\text{\LaTeX}$

**LANGUAGES**

- Russian: fluent (certified as Qualified Bilingual Staff at MGH)
- Spanish: can moderately understand, but speech is limited
- American Sign Language: brief exposure, very limited vocabulary

**INTERESTS**

Bollywood films and dance, ballroom dancing, computer programming, baseball, cycling, hiking, skiing, and writing ([www.dankats.com/thoughts](http://www.dankats.com/thoughts))