

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Petty, Carter R.

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

POSITION TITLE: Senior Biostatistician

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 (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Stanford University, Palo Alto, CA	A.B.	06/1998	Psychology
Harvard University, Cambridge, MA	A.M.	06/2002	Statistics

A. Personal Statement

I have spent most of my career as an applied biostatistician collaborating with clinicians and scientists in clinical, epidemiological, and basic science research. After earning my master's degree in statistics at Harvard University, I spent nearly ten years working with psychiatrists and psychologists in a research unit at Massachusetts General Hospital. I am currently a biostatistician at Boston Children's Hospital. I design and analyze studies in a wide array of pediatric research areas, including asthma and allergy, quality measurement, and developmental psychology. I am also a biostatistical consultant for Harvard Catalyst. I have co-authored over 100 peer-reviewed publications.

B. Positions and Honors**Positions and Employment**

2002–2012 Biostatistician, Pediatric Psychopharmacology Program, Massachusetts General Hospital, Boston, MA
2012– Senior Biostatistician, Institutional Centers for Clinical and Translational Research, Boston Children's Hospital, Boston, MA

C. Contribution to Science

1. *Pediatric asthma*. Recently my work has focused around pediatric asthma, and how environmental exposures in the school, home, and neighborhood affect asthma morbidity. Our work has documented the important role that allergens, endotoxin, pollution, and mold in a school setting play in the health of children with asthma.
 - a. Hauptman M, Gaffin JM, **Petty CR**, Sheehan WJ, Lai PS, Coull B, Gold DR, Phipatanakul W. Proximity to major roadways and asthma symptoms in the School Inner-City Asthma Study. *J Allergy Clin Immunol*. 2020 Jan;145(1):119-126.e4. doi: 10.1016/j.jaci.2019.08.038. Epub 2019 Sep 23. PubMed PMID: 31557500; PubMed Central PMCID: PMC6949366.
 - b. Gaffin JM, Hauptman M, **Petty CR**, Sheehan WJ, Lai PS, Wolfson JM, Gold DR, Coull BA, Koutrakis P, Phipatanakul W. Nitrogen dioxide exposure in school classrooms of inner-city children with asthma. *J Allergy Clin Immunol*. 2018 Jun;141(6):2249-2255.e2. doi: 10.1016/j.jaci.2017.08.028. Epub 2017 Oct 5. PubMed PMID: 28988796; PubMed Central PMCID: PMC5886827.

- c. Bartnikas LM, Huffaker MF, Sheehan WJ, Kanchongkittiphon W, **Petty CR**, Leibowitz R, Hauptman M, Young MC, Phipatanakul W. Impact of school peanut-free policies on epinephrine administration. *J Allergy Clin Immunol*. 2017 Aug;140(2):465-473. doi: 10.1016/j.jaci.2017.01.040. Epub 2017 Mar 25. PubMed PMID: 28347736; PubMed Central PMCID: PMC5546995.
 - d. Sheehan WJ, Permaul P, **Petty CR**, Coull BA, Baxi SN, Gaffin JM, Lai PS, Gold DR, Phipatanakul W. Association Between Allergen Exposure in Inner-City Schools and Asthma Morbidity Among Students. *JAMA Pediatr*. 2017 Jan 1;171(1):31-38. doi: 10.1001/jamapediatrics.2016.2543. PubMed PMID: 27893060; PubMed Central PMCID: PMC5349325.
2. *Pediatric quality measures*. I helped develop pediatric quality measures related to hospital readmissions that have been endorsed by the National Quality Forum. These measures will help to hold hospitals accountable for poor quality of care and also aid hospitals in improving their quality of care.
 - a. Center of Excellence for Pediatric Quality Measurement, Boston Children's Hospital. NQF Measure #2393 Pediatric All-Condition Readmission Measure. www.qualityforum.org
 - b. Center of Excellence for Pediatric Quality Measurement, Boston Children's Hospital. NQF Measure #2414 Pediatric Lower Respiratory Infection Readmission Measure. www.qualityforum.org
 3. *Psychiatric disorders*. My early work centered around understanding the familial relationships and longitudinal course of pediatric and adult psychiatric disorders, including mood, anxiety, disruptive behavior, substance use, and autism spectrum disorders. These findings have advanced the identification, prevention, and treatment of children and families burdened with psychopathology.
 - a. Hirshfeld-Becker DR, Micco JA, Henin A, **Petty C**, Faraone SV, Mazursky H, Bruett L, Rosenbaum JF, Biederman J. Psychopathology in adolescent offspring of parents with panic disorder, major depression, or both: a 10-year follow-up. *Am J Psychiatry*. 2012 Nov 1;169(11):1175-84. PubMed PMID: 23534056.
 - b. Liu HY, Potter MP, Woodworth KY, Yorks DM, **Petty CR**, Wozniak JR, Faraone SV, Biederman J. Pharmacologic treatments for pediatric bipolar disorder: a review and meta-analysis. *J Am Acad Child Adolesc Psychiatry*. 2011 Aug;50(8):749-62.e39. doi: 10.1016/j.jaac.2011.05.011. Epub 2011 Jul 13. Review. PubMed PMID: 21784295.
 - c. Faraone SV, Biederman J, Spencer T, Mick E, Murray K, **Petty C**, Adamson JJ, Monuteaux MC. Diagnosing adult attention deficit hyperactivity disorder: are late onset and subthreshold diagnoses valid? *Am J Psychiatry*. 2006 Oct;163(10):1720-9; quiz 1859. PubMed PMID: 17012682.
 - d. **Petty CR**, Rosenbaum JF, Hirshfeld-Becker DR, Henin A, Hubley S, LaCasse S, Faraone SV, Biederman J. The child behavior checklist broad-band scales predict subsequent psychopathology: A 5-year follow-up. *J Anxiety Disord*. 2008;22(3):532-9. Epub 2007 Apr 21. PubMed PMID: 17521868; PubMed Central PMCID: PMC2408858.

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

U01 AI110397 Phipatanakul (PI) 01/07/15-12/31/20
 School Inner-City Asthma Intervention Study
 The goal of this study is to determine if an environmental school-based intervention effectively and efficiently reduces asthma in inner-city children.
 Role: Statistician

R01 ES030100 Gaffin (PI) 01/15/19-12/31/23
 Indoor Air Quality and Respiratory Morbidity in School-aged Children with Bronchopulmonary Dysplasia
 This study aims to identify specific harmful components of the indoor environment associated with respiratory morbidity and poor lung function in children with bronchopulmonary dysplasia (BPD), independent of neonatal BPD severity and other known epidemiologic risk factors.
 Role: Statistician

R01 HD082078 Bosquet Enlow (PI) 08/10/15-11/30/20

Early Life Stress, Telomere Attrition, and Child Prefrontal Cortex Functioning

This study will examine links among (a) prenatal stress and TL at birth; (b) ELS and TL attrition through age 5 years; (c) prenatal stress reactivity, oxidative stress, and TL at birth; (d) stress reactivity, oxidative stress, and TL attrition through age 5 years; (e) TL at birth, TL attrition, and PFC functioning through age 5 years.

Role: Statistician

UL1 TR002541 Nadler (PI) 05/01/18-04/30/23

The Harvard Clinical and Translational Science Center

The goal of this project is to support Harvard investigators undertaking clinical and translational research.

Drawing on a team of highly skilled biostatisticians from the Harvard academic medical and hospital community, the program offers consultations and expertise on a range of relevant areas to researchers as they launch new clinical and translation projects.

Role: Biostatistical consultant

R01 AI065617 Chatila (PI) 08/01/98-8/31/22

Genetic and Epigenetic Programming of Allergic Airway Inflammation

This study will help elucidate novel mechanisms fundamental to the biology of allergic airway inflammation and its augmentation by particulate matter, and it will illuminate novel pathogenic pathways that could be therapeutically targeted in asthmatic subjects.

Role: Statistician

Completed Research Support

R01 AI073964 Phipatanakul (PI) 05/01/08-04/30/15

Allergens in Inner-City Schools and Childhood Asthma

The goal of this project was to provide an understanding of exposure risk factors specific to the classroom.

Role: Statistician

U18 MH922731 Schuster (PI) 09/30/16-09/29/20

Improving Child Healthcare through Dissemination and Implementation of Pediatric Quality Measures

The goal of this study is to support the dissemination and implementation of a subset of new child health quality measures developed by the Pediatric Quality Measures Program-Centers of Excellence (PQMP-COE) in key pediatric quality improvement (QI) gap areas through the work of multi-disciplinary partnership teams

Role: Statistical programmer