



Clinical Scientist Training Program
Institute for Clinical Research Education
University of Pittsburgh School of Medicine

Program Update 2014

CSTP Leadership

Amber E. Barnato, MD, MPH, MS

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Division of General Internal Medicine

Director, Clinical Scientist Training Program

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Flordeliza Villanueva, MD	R. Scott Watson, MD, MPH	Steven A. Webber, MBChB
Debra Weiner, MD	David Whitcomb, MD, PhD	

Executive Summary

In 2003, Dr. Arthur S. Levine (Dean of the University of Pittsburgh School of Medicine and Senior Vice Chancellor for the Schools of the Health Sciences), asked the Institute for Clinical Research Education (ICRE) to customize a clinical research training program for medical students at the University of Pittsburgh School of Medicine (UPSOM). The motivation for this program, which is now known as the Clinical Scientist Training Program (CSTP), was twofold: to contribute toward a solution to the national shortage of clinical investigators funded by the National Institutes of Health (NIH) and to attract the best and brightest medical students to Pittsburgh. In 2009, the School of Medicine approved a formal dual MD/MS program for CSTP trainees. In 2011, the CSTP expanded the number of training slots to meet increasing demand and interest, changing program requirements and scholarship from a 5-year to a 2-year commitment.

All CSTP trainees complete formal coursework towards a Certificate in Clinical Research or the dual MD/MS and mentored clinical research. Through July, 2014 we have matriculated 58 students; 60% are women and 21% are underrepresented minorities. We have graduated 35 students, 24 with an MD/MS and 8 with an MD/Certificate in clinical research. Of these graduates, 30 are still in training and 5 have completed training, 3 of who have faculty appointments at academic medical centers.

The purpose of this report is to summarize CSTP accomplishments and to spotlight 7 CSTP graduates, including 2 of our 1st class of graduates and 2 of our most recent 7th class of graduates. For more detailed information about the CSTP, visit <http://www.icre.pitt.edu/cstp-m/index.aspx>.

Outcomes

Since its inception 11 years ago, the CSTP has flourished, largely as a result of the intelligence, curiosity, and conscientiousness of the students, the unflagging commitment of their mentors, the rich educational and administrative infrastructure of the ICRE, and the generous financial support of the Office of the Dean. Through July 1, 2014, the CSTP matriculated 58 students. Of these, 35 have graduated (24 with an MD/MS in clinical research and 8 with an MD/certificate in clinical research), 10 are still participating in the program, 1 transferred to the PSTP, and 12 withdrew from the program.¹

Our students have authored a total of 95 peer-reviewed publications, and have presented at numerous local, national, and international conferences. **Since 2011, 100% of CSTP students reported that participation in the CSTP has increased the likelihood that they will pursue a career in clinical research.** Each year, the CSTP administrators assess student satisfaction and evaluate training outcomes through anonymous electronic surveys. Among the 5 CSTP graduates who have completed residency and fellowship training, 3 (60%) have faculty appointments at academic medical centers.

Admissions

From 2003-2011, 139 students applied to the CSTP after being invited to interview at the UPSOM. The major criteria for selection into the CSTP included academic achievement, prior research experience, and an expressed interest in and aptitude for a career in clinical and translational research. During this initial phase of the CSTP, prospective applicants simultaneously matriculated into the UPSOM and the CSTP.

In 2011, leadership from the ICRE conducted a strategic planning process to address three key concerns about the CSTP: 1) decreasing program slots due to fiscal challenges and the high cost of 5-year CSTP scholarships; 2) a 10% drop-out rate; and 3) increasing demand and interest in formal clinical research training among already-matriculated UPSOM students. The leadership, with input from student stakeholders, decided that targeting medical students for CSTP matriculation during third year would leverage the training, experience, and infrastructure of the UPSOM Scholarly Project and also allow a greater number of students to complete the CSTP while remaining budget neutral, by decreasing the total program scholarship costs per student. After the transition in 2012, 9 UPSOM students applied in 2013, 3 were admitted, and all 3 matriculated. **In 2014, the CSTP saw an increase in both funded slots available, as well as applications to the program.** During this current application cycle, 12 UPSOM students applied to the program, 11 were admitted, and 10 matriculated (1 withdrew their application to pursue an HHMI award).

Training

All CSTP trainees complete formal coursework towards a Certificate in Clinical Research or the dual MD/MS and mentored clinical research. Between 2003-2012 most trainees pursued the MD/MS; since 2012, most are pursuing the MD/Certificate. Coursework includes computer methods in clinical research, clinical research methods, biostatistics, measurement in clinical research, ethics and regulation of clinical research, medical writing and presentation skills, a longitudinal seminar focused on career development, peer review of research progress, and case-based learning in the ethics and regulation of

¹ One student changed career goals; one had academic integrity issues; one decided to pursue the research year at the NIH, which prohibited completion of the MS; and three cited personal and/or career issues prohibiting an additional year of study.

human subjects, and electives in topics from statistics (analysis of variance and regression, logistic regression, survival analysis, correlated data) to design (fundamentals of clinical trials, comparative effectiveness research, biomarkers) to select methods (cost effectiveness analysis, qualitative research, survey design). For more information about the curriculum, see: <https://www.icre.pitt.edu/cstp-m/curriculum.html>.

Advising

Dr. Barnato works with CSTP trainees to identify federally-funded clinical research mentors with a positive track record of mentoring. She then works closely with the trainee and their mentor to establish mutual expectations, to ensure productive communication, to set goals and objectives and to regularly assess progress during twice yearly progress reviews. Dr. Barnato also serves as each CSTP trainees' primary academic advisor for their graduate Certificate in Clinical Research or the dual MD/MS.

Current CSTP Trainees

Class of 2016

Trainee	Mentor(s)
Julie Boiko, BS, MS	Paul Szabolcs, MD
Phillip Choi, BS	David Okonkwo, MD, MS
Douglas Holt, BS	Dwight Heron, MD
Matthew Kesinger, BA	Jason Sperry, MD
Alexander Khalaf, BA	Howard Aizenstein, MD, PhD
Jeehong Kim, BS	Cuneyt Alper, MD
Olubusola Oluwole, BS	Enrico Novelli, MD, MS
Xiaoran Zhang, BS, MS	Nduka Amankulor, MD
Yin Zhao, BS	Robert Friedlander, MD

Class of 2015: **4 publications**

Trainee	Current Position	Mentor(s)
Alexandra Dreyzin*, MS	Rising 4 th Year Medical Student, University of Pittsburgh School of Medicine	Ira Fox, MD
Cynthia Grady	Rising 4th Year Medical Student, University of Pittsburgh School of Medicine	Dr. Sonya Borrero, MD, MS
Eduardo Nunez	Rising 4th Year Medical Student, University of Pittsburgh School of Medicine	Amber Barnato, MD, MPH, MS Charles Reynolds, MD
Sebastian Shterental	Rising 4th Year Medical Student, University of Pittsburgh School of Medicine	Marc Simon, MD
Regina Triplett*, MS	Rising 4th Year Medical Student, University of Pittsburgh School of Medicine	Miya Asato, MD Beatriz Luna, PhD

**Indicates the last trainees in the 5-year CSTP program*

CSTP Graduates

Class of 2014: 25 publications

Trainee	Current Position	Mentor(s)
Jayshiv Badlani, MD, MS	Internal Medicine Resident, University of Miami	James Irrgang, PhD, PT
Kyle Jackson, MD	General Surgery Resident, Johns Hopkins Hospital	Mary Amanda Dew, PhD Robert Kormos, MD
Ian Joel, MD	Internal Medicine Resident, University of California at Los Angeles	Charles Reynolds, MD
Simiao Li, MD, MS	Emergency Medicine Resident, Northwestern University	Rachel P. Berger, MD, MPH Judy C. Chang, MD, MPH
Constantinos Michaelidis, MD, MS	Internal Medicine Resident, Brigham and Women's Hospital	Kenneth Smith, MD, MS
Jacqueline Moreau, MD, MS	Internal Medicine Intern, University of Pittsburgh Medical Center, Dermatology Resident, Harvard Medical School	Laura K. Ferris, MD, PhD R. Scott Watson, MD, MPH

Class of 2013: 7 publications

Trainee	Current Position	Mentor(s)
Ryan Li, MD, MS	Orthopaedic Surgery Resident, Case Western Reserve University	James Irrgang, PhD, PT
Ben Sprague, MD, MS	Internal Medicine Resident, University of Pittsburgh Medical Center	Flordeliza Villanueva, MD
Lisa Tseng, MD, MS	Anesthesiology Resident, Washington University in St. Louis	Anne Newman, MD, MPH
Niketa Williams, MS	Student, University of Pittsburgh Medical School	Aletha Akers, MD, MPH Sharon Hillier, PhD

Class of 2012: 33 publications

Trainee	Current Position	Mentor(s)
Tanner Bartholow, MD, MS	Pathology Resident, University of Pittsburgh Medical Center	Michael Becich, MD, PhD Anil Parwani, MD, PhD
Tiffany Behringer, MD, MS	Emergency Medicine Resident, Vanderbilt University	Eleanor Bimla Schwarz, MD, MS
Naomi Pitskel, MD	Adult/Child & Adolescent Psychiatry Resident, Yale University	Kevin Pelphrey, PhD Nancy Minshew, MD
Sarah Ramer, MD, MS	Internal Medicine Resident, University of Medicine & Dentistry of New Jersey	Anne Germain, PhD Mark Unruh, MD, MSc

Class of 2011: 27 publications

Trainee	Current Position	Mentor(s)
J'mir Cousar, MD, MS	Emergency Medicine Resident, University of Cincinnati	Robert Clark, MD Yvette Conley, PhD
Lara Cox, MD, MS	Psychiatry Resident, New York University Langone Medical Center	David A. Brent, MD, MS Lisa A. Pan, MD
Elizabeth Genovese, MD, MS	Surgery Resident, University of Pittsburgh Medical Center, PhD Candidate, PhD in Clinical and Translational Science, Institute for Clinical Research Education, University of Pittsburgh	Mary Amanda Dew, PhD Robert Kormos, MD
Erin Ohmann, MD, MS	Urology Resident, New York University Langone Medical Center	Steven A. Webber, MBChB, MRCP

Class of 2010: 16 publications

Trainee	Current Position	Mentor(s)
Neilly Ann Buckalew, MD, MS, MSEL, ND	NIH/NIA Fellow, University of Pittsburgh School of Medicine	Debra Weiner, MD
Alison Goldberg Rubin, MD, MS	Pediatrics private practice, Wilmington, Delaware	Melanie Gold, DO Eleanor Bimla Schwarz, MD, MS
Emily Spangler, MD, MS	Vascular Residency Research Fellow, Dartmouth-Hitchcock Medical Center	Kim Sutton-Tyrell, DrPH

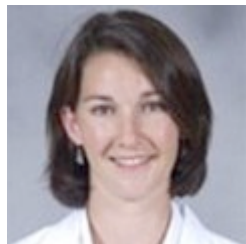
Class of 2009: 19 publications

Trainee	Current Position	Mentor(s)
Maria De La Luz Nieto, MD	Obstetrics and Gynecology Resident, University of Massachusetts Medical School	Steven Albert, PhD, MSPH
Deborah Kowalchuk, MD, MS	Orthopedic Surgery Resident, University of Massachusetts Medical School	James Irrgang, PhD, PT
Meredith Parrott, MD	Obstetrics and Gynecology Resident, University of Pittsburgh Medical Center	Lisa M. Bodnar, PhD, MPH, RD James M. Roberts, MD
Laura Raducha-GraceThompson, MD, MS	Assistant Professor of Emergency Medicine, The Ohio State University	C. Kent Kwoh, MD

Class of 2008: 25 publications

Trainee	Current Position	Mentor(s)
Henry "Patrick" C. Driscoll, MD, MS	Assistant Professor of Psychiatry, University of Pittsburgh	Charles Reynolds, MD
Alvin Jones, MD, MS	Orthopedic Surgery Resident, West Virginia University School of Medicine	Said Ibrahim, MD, MPH C. Kent Kwoh, MD
Nima Naghshineh, MD, MS, MSc	Plastic Surgery Resident/Fellow, Center for Innovation in Restorative Medicine, University of Pittsburgh Medical Center	Anita Courcoulas, MD, M6 Kathleen McTigue, MD, MPH, MS J. Peter Rubin, MD
Kristen Scopaz, MD, MS	Family Medicine/Sports Medicine private practice, Scarborough, Maine	Kelley Fitzgerald, PhD, PT
Arun Sharma, MD, MS	Otolaryngology-Head and Neck Surgery Resident/Research Fellow, University of Washington	David Whitcomb, MD, PhD
Ann Willman Silk, MD, MS	Assistant Professor, Rutgers Cancer Institute of New Jersey	Olivera Finn, PhD

Trainee Spotlight



Ann Willman Silk, MD, MS

“My training in the CSTP definitely helped me write my first protocol. I would recommend it to anyone who is going into academic medicine.”

Scientific Biography

Ann Willman Silk graduated from Swarthmore College in 2001 with a BA in biology. She worked for two years as a clinical research coordinator for ovarian cancer clinical trials conducted by Dr. Ursula Matulonis and Dr. Susana Campos at the Dana-Farber Cancer Institute in Boston, Massachusetts. Ann matriculated into the University of Pittsburgh School of Medicine in 2003. During Ann’s time in medical school, she was part of the research team with the University of Pittsburgh’s Department of Immunology under the tutelage of Dr. Olivera Finn, Chair and Distinguished Professor of Immunology. The focus of her research was characterizing the frequency of antibodies MUC-1 tumor antigen in patients with adenomas and colorectal cancer. Ann completed the CSTP, and graduated from the University of Pittsburgh School of Medicine in 2008 with a MD/MS degree. Ann then matched into the Internal Medicine program at the University of Pittsburgh Medical Center, completing her residency in 2011. After completing her residency, Ann began a fellowship in Hematology/Oncology at the University of Michigan. Building on the research experiences from throughout her academic career, Ann’s passion for clinical research continued. During her fellowship, she investigated clinical, immune, and imaging outcomes of combination treatment with immunotherapy and radiotherapy for melanoma brain metastases. Ann’s dedication to research earned her the 2014 Hematology/Oncology Fellowship in Research Award for the Division of Hematology/Oncology, at the University of Michigan. Beginning July 1, 2014, Ann will become an Assistant Professor with the Rutgers Cancer Institute of New Jersey, where she will have 60% guaranteed protected time for research.

Publications

1. Hodi FS, Mihm MC, Soiffer RJ, Haluska FG, Butler M, Seiden MV, Davis T, Henry---Spires R, MacRae S, Willman A, Padera R, Jaklitsch MT, Shankar S, Chen TC, Korman A, Allison JP, Dranoff G. Biologic activity of cytotoxic T lymphocyte---associated antigen 4 antibody blockade in previously vaccinated metastatic melanoma and ovarian carcinoma patients. *Proceedings of the National Academy of Sciences* 2003; 100: 4712-4717.
2. Penson RT, Campos SM, Seiden MV, Krasner C, Fuller AF Jr, Goodman A, Roche M, Willman A, Muzikansky A, Matulonis UA; Gynecologic Oncology Research Program at Dana Farber/Partners Cancer Care. A phase II study of fixed dose rate gemcitabine in patients with relapsed Mullerian tumors. *International Journal of Gynecological Cancer* 2005; 15(6):1035-41.
3. Silk AW and Finn OJ. Cancer vaccines: a promising cancer therapy against all odds. *Future Oncology* 2007; 3(3):299-306.
4. Silk AW, Schoen RE, Potter DM, Finn OJ. Humoral immune response to abnormal MUC1 in subjects with colorectal adenoma and cancer. *Molecular Immunology* 2009; 47(1):52-6.

5. Silk AW and McTigue KM. Reexamining the physical examination for obese patients. *JAMA: The Journal of the American Medical Association* 2011; 305(2):193-4.
6. Silk AW and Schuetze SM. Histology---specific therapy for advanced soft tissue sarcoma and benign connective tissue tumors. *Current Treatment Options in Oncology* 2012; 13(3):285-98.
7. Silk AW, Bassetti MF, West BT, Tsien CI, Lao CD. Ipilimumab and radiation therapy for melanoma brain metastases. *Cancer Medicine* 2013; 2(6):899-906.

Funding

- University of Pittsburgh Clinical Scientist Training Program, 2003–2008
- Michigan Institute for Clinical and Health Research Pilot Grant Program; A randomized Phase II study of early initiation of ipilimumab in patients with melanoma brain metastases receiving stereotactic radiosurgery, \$50,000 awarded March 2014
- University of Michigan, Clinical Translational Resource Allocation Committee (CTRAC); A randomized Phase II study of early initiation of ipilimumab in patients with melanoma brain metastases receiving stereotactic radiosurgery \$50,000 awarded March 2014

Trainee Spotlight



H. Patrick Driscoll, MD, MS

"I think the CSTP research year is well timed between the third and fourth years of medical school and well positioned to promote the career of an earnest and aspiring researcher."

Scientific Biography

H. Patrick Driscoll graduated from Washington and Lee University in 2000 with a BA in philosophy. After he completed a pre-medicine program at Goucher College, he worked for two years as a post baccalaureate Intramural Research Training Award Fellow with Dr. Robert M. Brosh in the Laboratory of Molecular Gerontology at the National Institute on Aging, where he studied the biochemical characterization of key DNA helicase proteins associated with aging and genomic stability. Patrick Matriculated into the University of Pittsburgh School of Medicine in 2003. During his time in medical school, Patrick was mentored by Dr. Charles Reynolds, UPMC Professor of Geriatric Psychiatry, Professor of Neurology and Neuroscience, Senior Associate Dean, University of Pittsburgh School of Medicine, Professor of Behavioral and Community Health Sciences University of Pittsburgh Graduate School of Public Health. Patrick completed the CSTP, and graduated from the University of Pittsburgh School of Medicine in 2008 with a MD/MS degree. Patrick then completed a General Adult Psychiatry residency at the University of Pittsburgh Medical Center. In July 2011, Patrick became an Assistant Professor of Psychiatry, in the University of Pittsburgh's Department of Psychiatry.

Publications

1. **Driscoll HC**, Matson SW, Sayer JM, Kroth H, Jerina DM, Brosh RM Jr. Inhibition of Werner syndrome helicase activity by benzo[c]phenanthrene diol epoxide dA adducts in DNA is both strand-and stereoisomer-dependent. *Journal of Biological Chemistry*. 2003;278(42):41126-35.
2. Sharma S, Sommers JA, **Driscoll HC**, Uzdilla L, Wilson TM, Brosh RM Jr. The exonucleolytic and endonucleolytic cleavage activities of human exonuclease 1 are stimulated by an interaction with the carboxyl-terminal region of the Werner syndrome protein. *Journal of Biological Chemistry*. 2003;278(26):23487-96.
3. Sharma S, Otterlei M, Sommers JA, **Driscoll HC**, Dianov GL, Kao HI, Bambara RA, Brosh RM Jr. WRN helicase and FEN-1 form a complex upon replication arrest and together process branch-migrating DNA structures associated with the replication fork. *Molecular Biology of the Cell*. 2004;15(2):734-50.
4. **Driscoll HC**, Basinski J, Mulsant BH, Butters MA, Dew MA, Houck PR, Mazumdar S, Miller MD, Pollock BG, Stack JA, Schlernitzauer MA, Reynolds CF 3rd. Late-onset major depression: clinical and treatment-response variability. *International Journal of Geriatric Psychiatry*. 2005;20(7):661-7.
5. **Driscoll HC**, Karp JF, Dew MA, Reynolds CF 3rd. Getting better, getting well: understanding and managing partial and non-response to pharmacological treatment of non-psychotic major depression in old age. *Drugs and Aging*. 2007;24(10):801-14.

6. **Driscoll HC**, Serody L, Patrick S, Maurer J, Bensasi S, Houck PR, Mazumdar S, Nofzinger EA, Bell B, Nebes RD, Miller MD, Reynolds CF 3rd. Sleeping well, aging well: a descriptive and cross-sectional study of sleep in "successful agers" 75 and older. *American Journal of Geriatric Psychiatry*. 2008;16(1):74-82.
7. Lenze EJ, Sheffrin M, **Driscoll HC**, Mulsant BH, Pollock BG, Dew MA, Lotrich F, Devlin B, Bies R, Reynolds CF 3rd. Incomplete response in late-life depression: getting to remission. *Dialogues in Clinical Neuroscience*. 2008;10(4):419-30.
8. Sheffrin M, **Driscoll HC**, Lenze EJ, Mulsant BH, Pollock BG, Miller MD, Butters MA, Dew MA, Reynolds CF 3rd. Pilot study of augmentation with aripiprazole for incomplete response in late-life depression: getting to remission. *Journal of Clinical Psychiatry*. 2009;70(2):208-13.

Funding

- University of Pittsburgh Clinical Scientist Training Program, 2003—2008

Trainee Spotlight



Emily Spangler, MD, MS

“With the skills CSTP taught me, I have been excited to continue in research during my vascular surgery residency and have a strong basis upon which to become a more independent clinical researcher and clinician.”

Scientific Biography

Emily Spangler received a BS in physics from the Massachusetts Institute of Technology in 2005. During her time at MIT, Emily received numerous scholarships and awards that encompassed her wide-ranging interests, including music and engineering scholarships. Emily matriculated into the University of Pittsburgh School of Medicine in 2005. During her time in medical school, Emily was mentored by Dr. Kim Sutton-Tyrell, who serves as a Professor, and Vice Chair for Academics, in the University of Pittsburgh Department of Epidemiology. Similarly to Emily’s undergraduate career, her academic achievements were recognized by her receiving several awards. In 2010, Emily was the recipient of the University of Pittsburgh School of Medicine Doris B. Maxwell MD Prize for Surgery. Emily completed the CSTP, and graduated from the University of Pittsburgh School of Medicine in 2010 with a MD/MS degree. After graduation from medical school, Emily matched into the Vascular Surgery program at the Dartmouth-Hitchcock Medical Center. In 2013, Emily became a Vascular Residency Research Fellow, and true to form, Emily’s academic accomplishments were quickly acknowledged. In June of 2014, Emily co-authored, and co-investigated, a grant that was funded to continue her clinical research in vascular surgery.

Publications

1. **Spangler EL**, Dillavou ED, Smith KJ, Cost Effectiveness of guidelines for insertion of inferior vena cava filters in high-risk trauma patients. *JVS* 2010; 52(6): 1537-45.
2. Li Petri S, Pagano D, Echeverri GJ, Cintonino D, Gruttadauria S, Traina M, Caruso S, **Spangler E**, Gridelli B, Spada M, Different surgical approach to treat hepatobiliary cystadenomas presenting as an acute abdomen. *Am Surg.* 2010; 76(9): E170-2.
3. Solari MG, **Spangler E**, Lee A, Wollstein R, Fixation of comminuted distal radius fractures with a mixture of calcium phosphate and calcium sulfate cement, *Hand Surg.* 2011; 16(2):223-8
4. DeMartino RR, Goodney PP, **Spangler EL**, Wallaert JB, Corriere MA, Rzcuidlo EM, Walsh DB, Stone DH, Variation in thromboembolic complications among patients undergoing commonly performed cancer operations. *JVS* 2012, 55(4):1035-1040.
5. Gupta NY, **Spangler E**, Adventitial Cystic Disease of the Popliteal Artery: Angioplasty Resulting in Thrombosis. *Vascular Disease Management* 2012;9(9): E155-8.
6. Goodney PP, McClurg A, **Spangler EL**, Brooke BS, Demartino RR, Stone DH, Nolan BW, Preventive measures for patients at risk for amputation from diabetes and peripheral arterial disease. *Diabetes Care.* 2014, 37(6):e139-40.

7. **Spangler EL**, Goodney PP, Schanzer A, Stone DH, Schermerhorn ML, Powell RJ, Cronenwett JL, Nolan BW, Outcomes of carotid endarterectomy versus stenting in comparable medical risk patients. *JVS* (In Press).

Funding

- University of Pittsburgh Clinical Scientist Training Program, 2005 – 2010
- UPSOM Summer Research Program; June 2006 – August 2006
- School of Medicine Maine Research Experience, Mount Desert Island Biological Laboratory; June 2006
- NIA Grant #1T32AG21885, Pre-Doctoral Trainee on Dr. Stephanie Studenski's T32 Training Grant in Aging; 2008-2009
- Dartmouth-Hitchcock Department of Surgery Care Path Award –for REVAMP (Readmissions from Vascular Minimization Project); \$25,000 in departmental funds awarded; November 2013
- Society for Vascular Surgery Multicenter Clinical Studies Planning Grant – for the Vascular Physician Offer and Report (VAPOR) Trial; grant co-author and Co-investigator with PIs Dr. Phillip Goodney and Dr. Alik Farber, \$100,000 awarded June 2014
- PI of the Decision Analysis Informing Quality Improvement in Imaging strategies for Revascularization Interventions (DAIQIRI) study (in progress)

Trainee Spotlight



Elizabeth Genovese, MD, MS

"I am building directly upon my University of Pittsburgh MS in clinical research by completing the PhD in clinical and translational research during my UPMC vascular surgery residency research requirement."

Scientific Biography

Elizabeth Genovese received a BS from the University of Notre Dame in 2006, with a major in preprofessional studies and a minor in gender studies. While attending Notre Dame, she worked for two years under Dr. JoEllen Welsh, researching the use of natural and synthetic vitamin D as a treatment for breast cancer. Elizabeth matriculated into the University of Pittsburgh School of Medicine in 2006. During Elizabeth's time in medical school, her mentoring team primarily consisted of Dr. Mary Amanda Dew, Professor of Psychiatry, Psychology, biostatistics, Epidemiology, and clinical and Translational Science, and Dr. Robert Kormos, director of the Artificial Heart Program, Co-Director of Heart Transplantation at UPMC, and Medical Director of Vital Engineering. During Elizabeth's time in medical school, her clinical research involved the risk factors for adverse events in patients implanted with ventricular assist devices. She also became interested in researching Vascular Surgery Outcomes during this time period. Elizabeth completed the CSTP, and graduated from the University of Pittsburgh School of Medicine with a MS in 2010, and a MD in 2011. Elizabeth then matched into the Integrated Vascular Surgery program at the University of Pittsburgh Medical Center. In 2014, Elizabeth was accepted into the PhD in Clinical and Translational Science Program, within the University of Pittsburgh's Institute for Clinical Research Education.

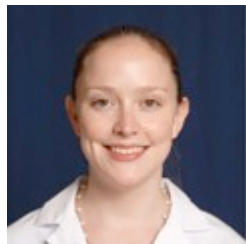
Publications

1. **Genovese EA**, Dew MA, Teuteberg JJ, Simon MA, Kay J, Siegenthaler MP, Bhama JK, Bermudez CA, Lockard KL, Winowich S, Kormos RL. Incidence and Patterns of Adverse Event Onset During the First 60 Days After Ventricular Assist Device Implantation. *Ann Thorac Surg.* 2009 Oct;88(4):1162-70.
2. Bhama JK, Rayappa S, Zaldonis D, Adusumulli P, Bansal A, **Genovese EA**, Teuteberg JJ, Toyoda Y, Siegenthaler MP, Bermudez CA, McCurry KR and Kormos RL. Impact of Abdominal Complications on Outcome Following Mechanical Circulatory Support Therapy. *Ann Thorac Surg.* 2010Feb;89(2):522-8; discussion 528-9.
3. Franko J, Feng W, Yip L, **Genovese E**, Moser AJ. Non---functional Neuroendocrine Carcinoma of the Pancreas: Incidence, Tumor Biology, and Outcomes in 2,158 Patients. *J Gastrointest Surg.* 2010 Mar;14(3):541-8.
4. **Genovese EA**, Dew MA, Teuteberg JJ, Simon MA, Bhama JK, Bermudez CA, Lockard KL, Winowich S, Kormos RL. Early Adverse Events as Predictors of One---Year Mortality During Mechanical Circulatory Support. *J Heart Lung Transplant.* 2010 Sep;29(9):981-8.
5. Zahr F, **Genovese EA**, Mathier M, Shullo M, Lockard K, Zomack R, McNamara D, Toyoda Y, Kormos RL, Teuteberg JJ. Obese Patients and Mechanical Circulatory Support: Weight Loss, Adverse Events, and Outcomes. *Ann Thorac Surg.* 2011 Oct; 92(4):1420-6.
6. Bonde P, Ku NC, **Genovese EA**, Bermudez CA, Bhama JK, Ciarleglio MM, Cong X, Teuteberg JJ, Kormos RL. Model for End Stage Liver Disease Score Predicts Adverse Events Related to Ventricular Assist Device Therapy. *Ann Thorac Surg.* 2012 May; 93(5): 1541-7.

Funding

- University of Pittsburgh Clinical Scientist Training Program, 2006–2011
- University of Pittsburgh School of Medicine Dean’s Summer Research Program Scholarship, 2007
- Doris Duke Clinical Research Fellowship, 2009–2010.
- NIH-funded Pre-doctoral Fellowship in clinical and Translational Research (CTSI T32: 5TL1RR024155-04), 2009-2010

Trainee Spotlight



Naomi Pitskel, MD

“The individualized and readily accessible advising provided by Dr. Amber Barnato was incredibly supportive of my research aspirations, while helping to hone my expectations and guide my specific pursuits.”

Scientific Biography

Naomi Pitskel graduated from Brandeis University in 2005 with a BS in neuroscience. While attending Brandeis, she worked for three years with Dr. Ann Skoczenski at the University of Massachusetts Medical School, where she studied visual development and dyslexia and where she also conducted a senior research project on visual processing in adults with autism. After college, she worked for 2 years with Dr. Alvaro Pascual-Leone at Harvard Medical School, investigating cortical plasticity in the visual cortex of human subjects undergoing long-term visual deprivation. Naomi matriculated into the University of Pittsburgh School of Medicine in 2007. During Naomi’s time in medical school, her mentoring team primarily consisted of Dr. Kevin Pelphrey from the Yale University School of Medicine, and Dr. Nancy Minshew, Professor of Psychiatry and Neurology at the University of Pittsburgh School of Medicine. Throughout Naomi’s entire academic experience, research has been at the forefront. Naomi has been employed as a Research Assistant, Research Collaborator, and a Clinical Research Fellow. Naomi completed the CSTP, and graduated from the University of Pittsburgh School of Medicine with a MD in 2012. Naomi then matched into the Adult/Child & Adolescent Psychiatry program within the Yale School of Medicine. In 2014, Naomi received the National Institute of Mental Health Resident Award.

Publications

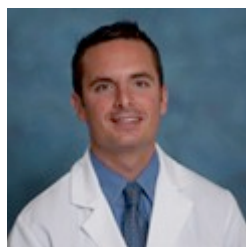
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Funding

- University of Pittsburgh Clinical Scientist Training Program, 2007–2012
- Doris Duke Clinical Research Fellowship, Yale School of Medicine, 2009–2010

Trainee Spotlight



Constantino Michaelidis, MD, MS

“The CSTP facilitated close professional relationships with important mentors, provided formal clinical research training in cost-effectiveness analysis and decision science, and exposed me to challenging research problems that furthered my growth as a clinician scientist.”

Scientific Biography

Constantinos Michaelidis graduated from Swarthmore College in 2005 with a BA in biology and a BA in history. As an undergraduate, he conducted research on mechanisms of sexual selection and correlates of mating success in *Photinus greeni* fireflies. After graduation, he worked as a high school biology teacher and health care consultant. Constantino matriculated into the University of Pittsburgh School of Medicine in 2009. During his time in medical school, Dr. Kenneth Smith, Associate Professor of Medicine, served as Constantino’s mentor. Constantino’s research revolved around his focus on developing Markov models to evaluate the cost-effectiveness of community-based vaccination programs to ameliorate racial disparities in influenza and pneumococcal vaccination rates. Constantino completed the CSTP, and graduated from the University of Pittsburgh School of Medicine with a MS in 2013, and a MD in 2014. While the list of Constantino’s academic accomplishments is too lengthy to list completely, here is a brief snapshot of his honors: 2014 University of Pittsburgh School of Medicine Certificate of Merit for Research Excellence, 2014 University of Pittsburgh Alumni Association Scholarship for Academic Excellence, 2014 Cum Laude, University of Pittsburgh School of Medicine. Constantino matched into the Internal Medicine program at the Brigham and Women’s Hospital.

Publications

1. **Michaelidis CI**, Zimmerman RK, Nowalk MP, Smith KJ. Estimating the cost-effectiveness of a national program to eliminate disparities in influenza vaccination rates among elderly minority groups. *Vaccine*. 2011;29(19): 3525-3530.
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3. **Michaelidis CI**, Zimmerman RK, Nowalk MP, Fine MJ, Smith KJ. Cost-effectiveness of procalcitonin---guided antibiotic therapy for management of adult acute respiratory tract infections in the ambulatory setting. *J Gen Intern Med*. 2014;29(4):579-586.

Funding

- University of Pittsburgh Clinical Scientist Training Program, 2009–2014
- Doris Duke Clinical Research Fellowship, 2012–2013
- T32 Research Training Grant in Geriatrics and Gerontology, 2012–2013
- Medical Student Training Award, American Federation for Aging Research, 2010

Trainee Spotlight



Jacqueline Moreau, MD, MS

“The mentorship component of the Program was also outstanding. Dr. Barnato facilitated interactions with top researchers at Pitt and UPMC, ensured that our mentorship relationships were productive, and helped us understand the path to becoming independently funded.”

Scientific Biography

Jacqueline Moreau graduated from Boston University in 2006 with a BA in public health. During college, she conducted thesis research on the impact of being Latino on the US healthcare experience. In addition, she created and contributed to educational curricula for several national organizations. For nearly a year after graduating, Jacqueline worked as a research and content development assistant for the Science Education Division of the journal Nature. She subsequently spent nearly two years as the manager of a quality improvement research project in the Department of Emergency Medicine at Brigham and Women's Hospital. Jacqueline matriculated into the University of Pittsburgh School of Medicine in 2009. During Jaqui's time in medical school, her mentoring team primarily consisted of Dr. Laura Ferris, Assistant Professor of Dermatology at the University of Pittsburgh School of Medicine, and Dr. R. Scott Watson, Associate Professor of Critical Care Medicine and Pediatrics, also with the University of Pittsburgh School of Medicine. Jacqueline completed the CSTP, and graduated from the University of Pittsburgh School of Medicine with a MS in 2013, and a MD in 2014. Jacqueline matched into both the Internal Medicine program at the University of Pittsburgh Medical Center, and the Dermatology program at the Harvard Medical School.

Publications

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Funding

- University of Pittsburgh Clinical Scientist Training Program, 2009–2014
- Doris Duke Clinical Research Fellowship, University of Pittsburgh School of Medicine, 2012–2013
- T35 START-UP Research Training Grant, University of Pittsburgh, 2009

Appendices

1. Full abstracts of CSTP “Spotlight” Graduates’ statements regarding “What the CSTP meant to me.”
2. CSTP Graduate Socio-demographics

Appendix 1

CSTP Graduate Spotlight Trainees on “What the CSTP Meant to Me.”

Ann Willman Silk, MD, MS

My masters degree was clearly attractive to fellowship program directors. I was actively recruited by two top-tier programs. When I started my fellowship in medical oncology, I had a more sophisticated understanding of trial design and statistical analysis than many of my peers. I have had had three statisticians say to me, "You ask really good questions!" I do not think the CSTP affected my career choice per se because I have had the same goals for a long time.

H. Patrick Driscoll, MD, MS

It is hard to imagine trying to start a research career with a debt burden unrelieved by a scholarship during medical school. If I had had to pay the full amount of tuition as a medical undergraduate, I would probably have waited to begin research training, knowing that the training would likely be funded during residency or a fellowship. However, I think it is more valuable to have research training as a medical student, since being more scientifically literate makes for a richer experience in clinical training during residency and allows individuals to take more advantage of other training opportunities.

For me, CSTP meant the clinical research training especially mentorship that has enabled me to be a better educator to the residents and medical students I teach, a more evidence based clinician, as well as a clinical supporter and informal collaborator in the studies of some colleagues who are principal investigators in the areas of child and adolescent psychosis and depression. It has also helped me to develop the clinical writing skills to contribute to a book on motivational interviewing for medical trainings (currently under submission to Oxford University Press). Perhaps most of all, it has also given me the tools to think about how to develop and eventually communicate about our inpatient unit's effort to implement a collaborative problem solving programming to reduce the need for seclusions, restraints, and PRN's for disruptive children. I am very grateful to all that the CSTP helped me to accomplish as I continue to develop the tools that I learned.

Naomi Pitskel, MD

During the medical school application process, I heavily considered applying for combined MD/PhD programs. I had a desire to pursue research in tandem with clinical training, and felt hesitant about the tuition burden of a traditional medical school education. I did not, however, wish to delay my clinical training and entry into the workforce by an extra three or four years, and ultimately decided against the MD/PhD route. I found myself pleasantly surprised to learn about the five--year Clinical Scientist Training Program at the University of Pittsburgh School of Medicine. The program had the great appeal of offering formalized training in clinical research, with dedicated research time, without drastically lengthening the overall training process. Moreover, the full tuition scholarship awarded to me by the Program allowed me the financial flexibility to pursue an academic research career with little anxiety over how I would repay my educational debt.

My experiences in the CSTP were overwhelmingly positive. The individualized and readily accessible advising provided by Dr. Amber Barnato was incredibly supportive of my research aspirations, while helping to hone my expectations and guide my specific pursuits. The formalization of research mentorship with Program oversight ensured a good mentor-mentee fit, and the provision of dedicated research time allowed for more in-depth research involvement than

would generally be possible for most medical students. Additionally, the coursework in clinical research principles and methodology provided a broad knowledge base that has enabled me to excel in my post-graduate training.

Participating in the CSTP undoubtedly influenced my choice of, and competitiveness for, residency programs. I am currently completing my PGY-2 year in the Albert J. Solnit Integrated Psychiatry Training Program at the Yale Child Study Center and Department of Psychiatry. This unique program aims to cultivate clinical and research scholarship in child and adolescent psychiatry by combining residency and fellowship training in addition to significant protected research time. Despite being in a research-oriented training program within a high-powered academic department populated by many MD/PhD residents, I find myself ahead of my peers in many respects when it comes to research knowledge, grantsmanship, and productivity. I was recently awarded the NIMH Outstanding Resident Award, which aims to recognize PGY-2 psychiatry residents with outstanding research and academic potential. I have also passed the first round of review for the NIH Pediatric Research Loan Repayment Program, and have a pilot award application under review with the American Academy of Child and Adolescent Psychiatry. I credit my participation in the CSTP for affording me the solid clinical research foundation that I will continue to build upon as my career unfolds.

Emily Spangler, MD, MS

Participating in CSTP during my medical school training has been an invaluable asset in performing and critically evaluating clinical research. Having the opportunity to take formal classwork in outcomes and effectiveness methodology, while working with experienced faculty set the foundation for learning to perform clinical research well. With the skills CSTP taught me, I have been excited to continue in research during my vascular surgery residency and have a strong basis upon which to become a more independent clinical researcher and clinician.

Constantino Michaelidis, MD, MS

Briefly, the CSTP has provided me an array of research training opportunities for which I am incredibly grateful. The CSTP facilitated close professional relationship with important mentors in areas where I hope to further my professional development, provided formal clinical research training in cost-effectiveness analysis and decision science, and exposed me to challenging research problems that furthered my growth as a clinician scientist. With the help of the CSTP and under the guidance of my mentors Dr. Kenneth Smith and Dr. Amber Barnato, I received research funding from three different funding sources, authored six first-author manuscripts with different collaborators and presented this work at four national meetings. I hope to continue my clinical research training during my residency training in Internal Medicine at Brigham and Women's Hospital in Boston. I am so grateful for the opportunities provided by the CSTP.

Jacqueline Moreau, MD, MS

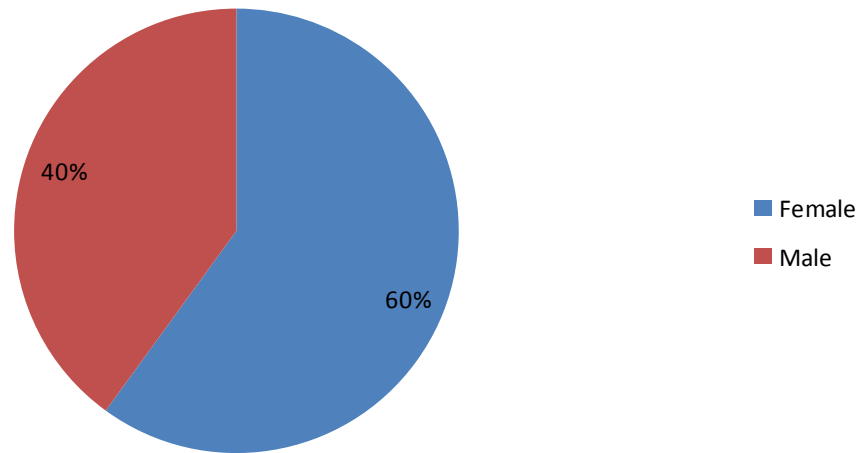
I joined the CSTP hoping to develop the tools necessary to become a successful clinician researcher; and that is exactly what happened. The aspects of the CSTP that benefitted me most were clinical research knowledge, CTSI support, and mentorship. My classroom educational experience was strong, yet it was applying what I learned to my own data that made my knowledge endure. I am grateful to the CSTI for helping me do this, solidifying my statistics knowledge to the point where I was able to serve as a resource to many of my colleagues. And, incidentally, I became armed with sufficient skills and resources to become prolific with regard to publications. The mentorship component of the Program was also outstanding. Dr. Barnato facilitated interactions with top researchers at Pitt and UPMC, ensured that our mentorship relationships were productive, and helped us understand the path to becoming independently funded. My personal mentor, Dr. Ferris,

integrated me into as many projects as she could and helped me network with some of the best and brightest researchers in dermatology. As a result, I developed mentors across the nation and apparently became the first medical student to review for either of the world's top two dermatology journals. The editors frequently offer feedback that my critical thinking skills and statistics knowledge are outstanding, certainly to the credit of my Master's coursework. Furthermore, discussion during my dermatology and preliminary medicine interviews flowed naturally, without exception focusing on experiences and accomplishments made in the CSTP; I got my top choice for both internship and residency. I'm grateful that I was chosen for this special Program and that it helped me find my vocation.

Appendix 2

CSTP Graduate Socio-demographics

Gender Breakdown of CSTP Graduates



Race and Ethnicities Identified by CSTP Graduates

