## BIOGRAPHICAL SKETCH

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NAME: Joel M. Gelfand

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

POSITION TITLE: James J. Leyden Professor of Dermatology and Epidemiology (with tenure)

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 |
|---|---|---|---|
| Tufts University, Medford, MA | B.S. | 1989-1993 | Biology |
| Harvard Medical School, Boston, MA | M.D. | 1993-1998 | Medicine |
| University of Pennsylvania, Philadelphia, PA | M.S.C.E. | 2001-2003 | Epidemiology |

### A. Personal Statement

Dr. Gelfand's research program focuses on observational and experimental studies in patients with psoriasis, a chronic, immune mediated disease of the skin and joints that affects over 125 million people worldwide. His independent research program has been highly impactful (h index 99, >38,000 citations) and has led to changes in the standard of care for psoriasis patients. He has been the PI of multiple federal grants (F32, K23, K24, RC1, 4 R01s). He has established large population-based and multi-centered clinic-based cohorts of patients with psoriasis, which are the focus of longitudinal studies evaluating cardiovascular risk and the comparative effectiveness of treatment modalities in this population. He is also conducting translational and mechanistic clinical trials to determine how targeted and skin directed immune-targeted treatments affect vascular inflammation and cardiometabolic biomarkers. He additionally has expertise in atopic dermatitis, cutaneous T cell lymphoma, hidradenitis, and sarcoidosis. He has extensive experience mentoring pre and post-doctoral fellows and candidates in the Master of Science in Epidemiology Program. Dr. Gelfand is a dedicated mentor with over 20 MD and PhDs having spent at least one full year under his mentorship, 13 of whom have received a Master's degree in clinical epidemiology and 7 have received K23 awards. His trainees have received numerous grants from the NIH and have established independent research careers at PENN, Harvard, UCSF, NIH, Emory, Hopkins, and London School of Hygiene and Tropical Medicine. Of special importance to this P30 CCCR application Dr. Gelfand has extensive experience in multi-disciplinary team science, research methods (including patient engagement, observational and interventional designs, real-world data, qualitative research and implementation science), education, and administration.

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

Foundation Grant (National Psoriasis Foundation)
Gelfand (PI)
8/1/20-10/31/23 (non-competitive renewal through 10/31/25)
Prevention of cardiovascular disease and mortality in patients with psoriasis or psoriatic arthritis

PCORI R-1608-35830
Gelfand (PI)
4/1/18-3/31/24
A pragmatic trial of home versus office based nbUVB phototherapy for the treatment of psoriasis

P30-AR069589 (NIAMS)
Grice (PI) Role Co-Director Core C Data Sciences and Informatics Core

9/15/16-8/31/26
Penn Resource based center to support and translate skin diseases research

Industry Grant (Amgen)
Gelfand (PI)
1/12/17-12/31/25
The Vascular Inflammation in Psoriasis Apremilast Trial

Industry Grant (Boehringer Ingelheim)
Gelfand (PI)
12/21/18-12/31/25
The epidemiology of generalized and palmer pustular psoriasis in the US.

Citations:

Song WB, Garshick MS, Barbieri JS, Shin DB, Báez S, Papadopoulos M, Neopaney A, Fitzsimmons R, Kalb RE, Mease PJ, Craig ET, Koplin J, Takeshita J, Chiesa Fuxench ZC, Armstrong AW, Mehta NN, Beidas RS, Ogdie AR, **Gelfand JM**. A Care Coordination Model to Prevent Cardiovascular Events in Patients with Psoriatic Disease: A Multicenter Pilot Study. J Invest Dermatol. 2024 Jan 4:S0022-202X(23)03196-2

Barbieri JS, Beidas RS, Gondo GC, Fishman J, Williams NJ, Armstrong AW, Ogdie AR, Mehta N, **Gelfand JM.** Analysis of Specialist and Patient Perspectives on Strategies to Improve Cardiovascular Disease Prevention Among Persons with Psoriatic Disease. JAMA Dermatol. 2022 Mar 1;158(3):252-259.PMCID: PMC8771437

**Gelfand JM**, Shin DB, Armstrong AW, et al. Association of Apremilast With Vascular Inflammation and Cardiometabolic Function in Patients With Psoriasis: The VIP-A Phase 4, Open-label, Nonrandomized Clinical Trial. JAMA Dermatol. 2022;158(12):1394-1403. PMCID: PMC9494263.

Wan J, Fuxench ZCC, Wang S, Syed MN, Shin DB, Abuabara K, Lemeshow AR, **Gelfand JM**. Incidence of Cardiovascular Disease and Venous Thromboembolism in Patients With Atopic Dermatitis. J Allergy Clin Immunol Pract. 2023 Aug 10:S2213-2198(23)00905-4.

## B. Positions, Scientific Appointments and Honors

### Positions and Scientific Appointments

| | |
|---|---|
| 2023-Present | Director, Center for Clinical Sciences in Dermatology |
| 2022-Present | Deputy Editor, Clinical Research and Epidemiology, Journal of Investigative Dermatology |
| 2022-Present | Board of Directors, Medical Dermatology Society |
| 2021-Present | James J. Leyden, M.D. Endowed Professorship in Clinical Investigation |
| 2020-2023 | Co-chair, National Psoriasis Foundation COVID-19 Task Force |
| 2020-Present | Board of Directors, International Psoriasis Council (Treasurer, 2022-present) |
| 2020 | Ad hoc member, NIAMS AMS study section, Member, NIAMS Roundtable on Subset Analysis in Clinical Studies |
| 2017 | Ad hoc member, NIAMS AMSC study section |
| 2016-Present | Professor (with tenure) of Dermatology and Epidemiology, University of Pennsylvania Perelman School of Medicine, Philadelphia PA |
| 2016-2023 | Vice Chair for Clinical Research Department of Dermatology, PENN. |
| 2015-Present | Medical Director, Psoriasis and Phototherapy Treatment Center, Department of Dermatology, University of Pennsylvania |
| 2013-2019 | Director, Patient Centered Outcomes Research Track, Masters if Science Program (PENN) |
| 2013 | NIAMS *ad hoc* reviewer Loan repayment program |
| 2012-2016 | Associate Professor (with tenure) of Dermatology and Epidemiology, University of Pennsylvania Perelman School of Medicine, Philadelphia PA |
| 2011 | NIAMS Special Emphasis Panel/ Scientific Review Group- Clinical Trials Planning, Pilot and Research Grants |

| | |
|---|---|
| 2010-2011 | Assistant Professor of Epidemiology, Department of Epidemiology and Biostatistics, University of Pennsylvania |
| 2010-Present | Senior Scholar, Center for Clinical Epidemiology and Biostatistics, U of Penn |
| 2009 | Selected Member, NIH/NIAMS Challenge Grant Peer Reviewer, Selected Member, NIAMS ACTS Study Section on Small Business Applications; Selected Member, NIAMS Roundtable on Clinical Trials in Skin Diseases |
| 2008-2013 | The FDA/CDER Office of Surveillance and Epidemiology, Appointed member, Special Government Employee to the Drug Safety and Risk Management Advisory Committee |
| 2007-Present | Member, Institute for Translational Medicine and Therapeutics, U of Penn |
| 2005 | Selected Member, NIH/NIAMS Study Section, Contract on Innovative Therapies for Rheumatic and Skin Diseases |
| 2003-2010 | Associate Scholar, Center for Clinical Epidemiology and Biostatistics, U of Penn |
| 2003-2011 | Assistant Professor, Department of Dermatology, University of Pennsylvania |
| 2003-2023 | Medical Director, Clinical Studies Unit, Department of Dermatology, U of Penn |
| 2003- Present | Member, Cancer Center, University of Pennsylvania |
| 2002-2003 | Instructor, Department of Dermatology, University of Pennsylvania |
| 2002-2003 | Epidemiology Fellow, Hospital of the University of Pennsylvania, Philadelphia, PA |
| 1999-2002 | Resident Dermatology, Hospital of the University of Pennsylvania, Philadelphia, PA |
| 1998-1999 | Intern in Medicine, Mount Sinai Hospital, New York, NY |

**Honors**

| | |
|---|---|
| 2023 | American College of Epidemiology 2023 Outstanding Contributions Award |
| 2023 | National Psoriasis Foundation Distinguished Senior Investigator Award (Clinical Research) |
| 2022 | Founders Award, American Dermatoepidemiology Research Network |
| 2021 | James J. Leyden, M.D. Endowed Professorship in Clinical Investigation |
| 2019 | The Lady Barbara Colyton Prize for Autoimmune research, Perelman School of Medicine |
| 2017 | Outstanding Educator in Psoriatic Disease Award, National Psoriasis Foundation |
| 2017 | Outstanding scientific achievement, National Psoriasis Foundation (inaugural recipient) |
| 2017 | Marion B Sulzlberger MD Memorial Award and Lectureship, Amer. Academy of Dermatology |
| 2016 | American Academy of Dermatology Presidential Citation for Psoriasis Research |
| 2015 | Epidemiology Teaching Award, University of Pennsylvania Perelman School of Medicine |
| 2014 | The Eugene Farber Lecturer, Society for Investigative Dermatology |
| 2013-2018 | NIH/NIAMS K24 Midcareer Investigator Award in Patient-Oriented Research |
| 2013 | Elected member, American Dermatological Association |
| 2013 | Elected Member, American Society for Clinical Investigation |
| 2011 | American Skin Association Achievement Award for Psoriasis |
| 2011 | Perelman School of Medicine Bowman New Investigator Research Award |
| 2004-2009 | NIH/NIAMS K23 Mentored Career Development Award in Clinical Research |
| 2003 | Dermatology Foundation Career Development Award |
| 2002-2006 | NIH Clinical Research Medical School Loan Repayment Award |
| 2001-2003 | NIH National Research Service Award for Individual Postdoctoral Fellows (F32) |
| 2001 | The College of Physicians of Philadelphia Johnson Beerman Award for Research |
| 1998 | *Magna cum laude* Harvard Medical School |
| 1996 | Carl W. Walter Research Fellowship, Harvard Medical School |
| 1993 | Thomas and Emily Carmichael Prize Scholarship, for excellence in human physiology |
| 1993 | Class of 1947 Victor Prather Prize Scholarship, for excellence in research |
| 1993 | *Phi Beta Kappa Summa cum laude* Tufts University |

## C. Contributions to Science

1. *Demonstration of increased cardiovascular risk, diabetes, kidney disease and mortality in patients with psoriasis independent of traditional risk factors*. In 2006 we were the first to demonstrate that psoriasis is an independent risk factor myocardial infarction using modern epidemiological methods. We have since gone on to demonstrate an increased risk of stroke, CV mortality, diabetes, and chronic kidney disease, culminating in a 5-year reduction in life expectancy for patients with moderate to severe psoriasis. These studies launched a new field of investigation of psoriasis associated co-morbidities and evaluation of

psoriasis as a systemic disease. The findings have changed clinical practice with AAD/NPF and AHA/ACC guidelines being issued addressing the need to address cardiovascular risk in psoriasis. Dr. Gelfand continues to investigate this area as the PI of the first and currently only prospective population-based cohort of approximately 9000 psoriasis patients in which severity has been determined by measurements of body surface area affected (called the incident health outcomes and psoriasis events (iHOPE) study).

a. **Gelfand, JM**, Neimann, AL, Shin, DB, Wang, X, Margolis, DJ, and Troxel, AB. The risk of myocardial infarction in patients with psoriasis. *Journal of the American Medical Association.* 2006;296:1735-41.
*b.* Wan J, Wang S, Haynes K, Denburg MR, Shin DB, **Gelfand JM**. Risk of moderate of advanced kidney disease in patients with psoriasis: population based cohort study. *BMJ* 2013 Oct 15;347:f5961 (PMC3805477)
c. Ogdie A, Yu Y, Haynes K, Love TJ, Maliha S, Jiang Y, Troxel AB, Hennessy S, Kimmel SE, Margolis DJ, Choi H, Mehta NN, **Gelfand JM**. Risk of Major cardiovascular events in patients with psoriatic arthritis, psoriasis and rheumatoid arthritis: a population-based cohort study. *Annals of Rheumatic Disease* 2015; 74: 326-32 (PMC4341911)
d. Noe MH, Shin DB, Wan MT, **Gelfand JM**. Objective Measures of Psoriasis Severity Predict Mortality: A Prospective Population-Based Cohort Study. J Invest Dermatol. 2018 Jan;138(1):228-230 (PMC6748628)

2. *Demonstration of the effect of psoriasis treatment on aortic vascular inflammation and biomarkers of inflammation, lipid and glucose metabolism.* Working in collaboration with Dr. Nehal Mehta, Dr. Gelfand and his team have shown that psoriasis is associated with increased aortic inflammation (measured by FDG-PET/CT) and impaired HDL function as measured by cholesterol efflux capacity. Both vascular inflammation and HDL function have been shown to be risk factors for major CV events and may be part of the mechanism by which psoriasis confers CV risk. Dr. Gelfand then conducted multiple RCTs which detail the impact of treatments targeting TNF, IL12/23, IL17 and UVB phototherapy on key pathways of CV risk.
   *a.* Mehta NN, Shin DB, Joshi AA, Dey AK, Armstrong AW, Duffin KC, Fuxench ZC, Harrington CL, Hubbard RA, Kalb RE, Menter A, Rader DJ, Reilly MP, Simpson EL, Takeshita J, Torigian DA, Werner TJ, Troxel AB, Tyring SK, Vanderbeek SB, Van Voorhees AS, Playford MP, Ahlman MA, Alavi A, **Gelfand JM.** Effect of 2 Psoriasis Treatments on Vascular Inflammation and Novel Inflammatory Cardiovascular Biomarkers: A Randomized Placebo-Controlled Trial. Circ Cardiovasc Imaging. 2018 Jun;11(6) (PMC5991103)
   *b.* **Gelfand JM**, Shin DB, Alavi A, Torigian DA, Werner T, Papadopoulos M, Takeshita J, Noe MH, Dey AK, Playford MP, Mehta NN. A Phase IV, Randomized, Double-Blind, Placebo-Controlled Crossover Study of the Effects of Ustekinumab on Vascular Inflammation in Psoriasis (the VIP-U Trial). J Invest Dermatol. 2020 Jan;140(1):85-93 PMC6926160
   *c.* **Gelfand JM**, Shin DB, Duffin KC, Armstrong AW, Blauvelt A, Tyring SK, Menter A, Gottlieb S, Lockshin BN, Simpson EL, Kianifard F, Sarkar RP, Muscianisi E, Steadman J, Ahlman MA, Playford MP, Joshi AA, Dey AK, Werner TJ, Alavi A, Mehta NN A Randomized Placebo Controlled Trial of Secukinumab on Aortic Vascular Inflammation in Moderate to Severe Plaque Psoriasis (VIP-S). J Invest Dermatol. 2020;140:1784-1793. PMC7434644
   *d.* **Gelfand JM**, Shin DB, Armstrong AW, Tyring SK, Blauvelt A, Gottlieb S, Lockshin BN, Kalb RE, Fitzsimmons R, Rodante J, Parel P, Manyak GA, Mendelsohn L, Noe MH, Papadopoulos M, Syed MN, Werner TJ, Wan J, Playford MP, Alavi A, Mehta NN. Association of Apremilast With Vascular Inflammation and Cardiometabolic Function in Patients With Psoriasis: The VIP-A Phase 4, Open-label, Nonrandomized Clinical Trial. JAMA Dermatol. 2022 Sep 21:e223862; PMCID: PMC9494263.

3. *Determination of the comparative effectiveness of treatments used for moderate to severe psoriasis.* Evaluating the comparative effectiveness of treatments for moderate to severe psoriasis is a national priority (IOM 2009). Dr. Gelfand created the Dermatology Clinical Effectiveness Research Network (DCERN) in 2010 and conducted a multi-center prospective evaluation of 1800 consecutively seen patients with moderate to severe psoriasis in the routine clinical practice setting. This work demonstrated that biologic treatments are more effective than traditional medications but that patients are more likely to discontinue these biologics over time due to loss of efficacy and that the response rates to biologics in clinical practice are substantially lower than that reported in clinical trials. The studies impacted clinical practice as the American Academy of Dermatology has relied on our data to set performance standards for the treatment of moderate to severe psoriasis. These data also demonstrated that despite advances in

treatment, patients and dermatologists prefer phototherapy as the first line treatment for moderate to severe psoriasis but that patients increasingly are unable to access this treatment. We are now conducting a pragmatic trial to determine if phototherapy can be delivered in a more patient centered manner which enrolled 783 psoriasis patients at over 40 US sites (NCT03726489).

a. **Gelfand JM**, et al. Comparative Effectiveness of Commonly Used Systemic Treatments or Phototherapy for Moderate to Severe Plaque Psoriasis in the Clinical Practice Setting. *Archives of Dermatology* 2012;148(4):487-94 (PMC3476943)
b. Yeung H, Wan J, Van Voorhees AS, Callis Duffin K, Krueger GG, Kalb RE, Weisman JD, Sperber BR, Brod BA, Schleicher SM, Bebo BF Jr, Shin DB, Troxel AB, **Gelfand JM**. Patient-reported reasons for the discontinuation of commonly used treatments for moderate to severe psoriasis. *J Am Acad Dermatol.* 2013;68(1):64-72. (PMC3488143)
c. Hefele B, Langan SM, Pollins K, and **Gelfand JM**. Engaging the patients' perspective in clinical trials research. *J Invest Dermatology* 2019;139(6):1217-1220 PMC6540938

4. *Validation of electronic medical record data for studying psoriasis and psoriatic arthritis.* We have conducted a series of careful studies demonstrating that electronic codes of psoriasis and psoriatic arthritis reflect the true clinical diagnosis based on the gold standard of querying of the treating physician in two population-based, electronic medical records systems (General Practice Research Database and The Health Improvement Network). These studies have allowed these systems to be used extensively for the study of psoriasis by numerous investigators worldwide.
   a. **Gelfand JM**, Weinstein R, Porter SB, Neimann AL, Berlin JA, Margolis DJ. Prevalence and treatment of psoriasis in the United Kingdom: a population-based study. *Arch Dermatol*. 2005 Dec;141(12):1537-41.
   b. Seminara, N, Abuabara, K, Langan, S, Shin, DB, Kimmel S, Margolis, DJ, Troxel, AB, and **Gelfand, JM**. Validity of The Health Improvement Network (THIN) for the study of psoriasis. *British Journal of Dermatology* 2011;164(3):602-9 (PMC3064479)
   c. Ogdie A, Alehashemi S, Love TJ, Jiang Y, Haynes K, Hennessy S, Choi H, **Gelfand JM**. Validity of psoriatic arthritis and capture of disease modifying antirheumatic drugs in the health improvement network. *Pharmacoepidemiol Drug Saf*. 2014 Sep;23(9):918-22. (PMC4149813)
   d. Abuabara K, Magyari AM, Hoffstad O, Jabbar-Lopez ZK, Smeeth L, Williams HC, **Gelfand JM**, Margolis DJ, Langan SM. Development and Validation of an Algorithm to Accurately Identify Atopic Eczema Patients in Primary Care Electronic Health Records from the UK. J Invest Dermatol. 2017 Aug;137(8):1655-1662. PMCID: PMC5883318.

5. *Development of a novel centralized care coordinator model to lower cardiovascular risk in patients with psoriasis*. We demonstrated that patients with psoriasis have an increased risk for cardiovascular disease but are under treated and under managed for traditional CV risk factors. Using implementation science methods we are developing and testing a new approach to narrowing the evidence to practice gap.
   a. Barbieri JS, Beidas RS, Gondo GC, Fishman J, Williams NJ, Armstrong AW, Ogdie AR, Mehta N, **Gelfand JM**. Analysis of Specialist and Patient Perspectives on Strategies to Improve Cardiovascular Disease Prevention Among Persons with Psoriatic Disease. JAMA Dermatol. 2022 Mar 1;158(3):252-259.PMCID: PMC8771437
   b. Gustafson, Alix C, **Gelfand JM** et al. "Specialist and Patient Perspectives on Strategies to Improve Cardiovascular Disease Prevention Among Persons Living With Psoriatic Disease." Journal of psoriasis and psoriatic arthritis. 2022;7(4):174-186. NIHMSID: 1928138
   c. Takeshita J, Wang S, Shin DB, Mehta NN, Kimmel SE, Margolis DJ, Troxel AB, **Gelfand JM**. Effect of psoriasis severity on hypertension control: a population-based study in the United Kingdom. JAMA Dermatol. 2015 Feb;151(2):161-9; PMCID: PMC4728300.
   d. Song WB, Garshick MS, Barbieri JS, Shin DB, Báez S, Papadopoulos M, Neopaney A, Fitzsimmons R, Kalb RE, Mease PJ, Craig ET, Koplin J, Takeshita J, Chiesa Fuxench ZC, Armstrong AW, Mehta NN, Beidas RS, Ogdie AR, **Gelfand JM**. A Care Coordination Model to Prevent Cardiovascular Events in Patients with Psoriatic Disease: A Multicenter Pilot Study. J Invest Dermatol. 2024 Jan 4:S0022-202X(23)03196-2

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