

MICHELLE E. FULLARD, MD, MSCE

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CURRICULUM VITAE

Academic Address

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EDUCATION AND TRAINING

- 2003-2005 Research Assistant, Nass Laboratory, Vanderbilt University, Nashville, TN
- 2005-2006 Research Assistant, Wadzinski Laboratory, Vanderbilt University, Nashville, TN
- 2002-2006 B.S. in Neuroscience, Vanderbilt University, Nashville, TN, *Summa Cum Laude*
- 2006-2010 M.D., Vanderbilt University School of Medicine, Nashville, TN
- 2010-2011 Intern in Internal Medicine, University of Virginia, Charlottesville, VA
- 2011-2013 Resident in Neurology, University of Virginia, Charlottesville, VA
- 2013-2014 Chief Resident in Neurology, University of Virginia, Charlottesville, VA
- 2014-2017 Movement Disorders Fellow, University of Pennsylvania and Philadelphia
PADRECC, Philadelphia, PA
- 2015-2017 MSCE in Clinical Epidemiology, University of Pennsylvania, Philadelphia, PA
- 2017-2018 Post-doctoral fellow, Chen-Plotkin Laboratory, University of Pennsylvania,
Philadelphia, PA

FACULTY APPOINTMENTS

- 2017-2018 Instructor in Neurology, University of Pennsylvania, Philadelphia, PA
- 2018-Present Assistant Professor of Neurology, University of Colorado School of Medicine,
Denver, CO

HONORS, SPECIAL REGOGNITIONS, AWARDS

2002	Vanderbilt University Honors Scholarship
2002-2003	Southeastern Conference Academic Honor Roll
2003	Alpha Lambda Delta Honor Society
2003	Phi Etta Sigma Honor Society
2002-2006	Vanderbilt University College Scholar
2002-2006	Dean's Honor List all semesters of college
2006	Induction into Phi Beta Kappa Honor Society
2007	Amos Christie Summer Scholar
2009	American Medical Association Scholar Fund Award
2013	Virginia Neurological Society Scholarship
2014	Aspen Movement Disorders Course Travel Grant
2015	Selected for AAN Women in Leadership Program
2015	MDS Travel Grant Recipient for the 19 th International Congress of Parkinson's Disease and Movement Disorders
2016	American Academy of Neurology (AAN) 2016 Annual Meeting Fellow Scholarship Award
2016	American Neurological Association (ANA) 2016 Annual Meeting Travel Scholarship Award
2018	American Neurological Association (ANA) 2018 Annual Meeting Travel Scholarship Award
2019-2021	Scholar, Colorado Clinical & Translational Sciences Institute's Clinical Faculty Scholars Program
2019	Selected for Hispanic Outreach Leadership Program at Barrow Institute
2019	Parkinson Foundation Center of Excellence designation
2022	Parkinson Foundation COE Award for Highest Team Participation for the Parkinson's Foundation Palliative Care Education Course

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

2010-present	American Academy of Neurology
2014-present	International Parkinson and Movement Disorder Society
2016-present	American Neurological Association
2016-present	American Association for the Advancement of Science
2017-present	American College of Epidemiology
2020-present	Parkinson Study Group

MAJOR COMMITTEE AND SERVICE RESPONSIBILITIES

2015-2018	Udall Expert Consensus Panel, University of Pennsylvania
2019-present	Movement Disorders Society Functional Movement Disorders Working Group
2019-2020	Parkinson Progression Markers Initiative Gender Working Group

- 2018-2021 Associate Director of Research, Movement Disorders Center, University of Colorado Anschutz Medical Campus
- 2018-2019 Quality Improvement Committee, Department of Neurology
- 2019 Grant Reviewer, Health Research Board (HRB), Ireland: Patrick Quinn Awards for Parkinson's Research
- 2020-present Parkinson Study Group Healthcare Outcomes and Disparities Working Group
- 2021-present Parkinson Progression Markers Initiative Digital Sensor Working Group
- 2021 CCTSI PreK Mock Study Section Reviewer
- 2021-present Director of Research, Movement Disorders Center, University of Colorado Anschutz Medical Campus
- 2021-present Parkinson Association of the Rockies Medical Advisory Board Member
- 2021 CARES Act Committee, Department of Neurology
- 2021-present Director, Parkinson Foundation Center of Excellence
- 2022 Grant Reviewer, Parkinson Foundation Centers of Excellence Community Grants
- 2023-present Parkinson Progression Markers Initiative Sleep Working Group
- 2023 Grant Reviewer, Lorna Grindlay Moore Launch Award
- 2023-present Clinical FTE Definition Committee, Department of Neurology
- 2023-present Ethnicity Board Member for Deep Brain Stimulation for Methamphetamine Use Disorder study

LICENSURE AND BOARD CERTIFICATION

- 2014-present American Board of Psychiatry and Neurology
- 2014-2018 Medical License, State of Pennsylvania
- 2018-present Medical License, State of Colorado

REVIEW AND REFEREE WORK:

- 2016 Ad hoc reviewer, Translational Neurodegeneration
- 2019-present Ad hoc reviewer, NPJ Parkinson's Disease (Nature Publishing Journal)
- 2019 Ad hoc reviewer, OBM Geriatrics

2020-present Ad hoc reviewer, Movement Disorders
 2020 Ad hoc reviewer, Chemical Senses
 2020-present Ad hoc reviewer, PLOS ONE
 2020 Ad hoc reviewer, Neurobiology of Aging
 2023-present Ad hoc reviewer, European Journal of Neuroscience

INVITED EXTRAMURAL LECTURES, PRESENTATIONS, AND VISITING PROFESSORSHIPS

National/International

- “Parkinson’s 101: What You & Your Family Should Know.” Webinar for the Parkinson Foundation, October 19, 2022.
- “Women and Parkinson’s Disease.” Webinar for the Parkinson Association of British Columbia, September 9, 2022.
- “Women and Parkinson’s Disease.” Webinar for the Davis Phinney Foundation, August 7, 2019.
- “State-level Prevalence, Utilization and Cost Varies Widely Among Medicare Beneficiaries with Parkinson’s Disease.” American Neurological Association Data Blitz Platform Presentation, 2018 Annual Meeting, Atlanta, GA, October 22, 2018.
- Panel Member: Futures in Neurological Research Session at the American Academy of Neurology 2018 Annual Meeting, Los Angeles, CA, May 2018.
- “Biomarkers and Clinical Markers for Parkinson’s Disease.” Presentation at Northwestern’s Movement Disorders Research Series, December 1, 2017.
- “Biomarkers and Clinical Markers for Parkinson’s Disease.” Presentation at University of Virginia Movement Disorders Division meeting, October 27, 2017.
- “Biomarkers and Clinical Markers for Parkinson’s Disease.” Presentation at Stanford’s Movement Disorders Division meeting, October 10, 2017.
- “Olfactory Impairment Predicts Cognitive Decline in Early Parkinson’s Disease.” American Academy of Neurology Platform Presentation, 2016 Annual Meeting, Vancouver, BC, April 16, 2016.

Regional

- “Therapy Updates in Parkinson’s Disease.” Dine with the Doc event at St. Andrews Village Senior Living Community, June 30, 2022.
- “Research Updates in Progressive Supranuclear Palsy.” CurePSP Central Ohio Support Group talk, virtual, September 4, 2021.
- “Recursos para la enfermedad de Parkinson.” Panel member for breakout session, Parkinson Association of the Rockies Virtual e3 Conference, October 3, 2020.
- “Under the Bright Lights: Hospital Stays and Surgery following a Parkinson’s diagnosis.” 6th Annual Parkinson Disease Symposium, Movement Disorders Center, Denver, CO, October 26, 2019.
- “Advanced Therapies for Parkinson’s Disease.” Chat with the Parkinson’s Pros: Parkinson’s Association of the Rockies, Pueblo, CO, April 20, 2019.
- “Technology in Parkinson’s Disease.” 5th Annual Parkinson Disease Symposium, Movement Disorders Center, Denver, CO, October 27, 2018.

- “Women and Parkinson’s disease: Symptoms.” Women in PD TALK Forum, one of 10 regional forums sponsored by the Parkinson’s Foundation and PCORI, Philadelphia, PA, April 13, 2018.
- “What’s new in Assistive Devices and Technology in Parkinson’s Disease?” Keynote speaker, 14th Annual Jean Feldman Memorial Rehabilitation Conference, Mount Laurel, NJ, March 1, 2018.
- “Technology Advances for Parkinson’s Disease.” The 14th Annual Jane Wright Symposium on Parkinson’s Disease for Patients and Caregivers, Philadelphia, PA, June 15, 2017.
- Expert Clinician Panel Member: Philadelphia Clinical Research Fair, Michael J. Fox Foundation patient event, Philadelphia, PA, September 10, 2016.
- “Biomarkers and Cognition in PPMI.” Parkinson Progression Marker Initiative Study Update Patient event, Philadelphia, PA, November 21, 2015.
- “Intravascular Lymphoma Presenting as Recurrent Strokes and Encephalopathy.” Virginia Neurological Society Annual Conference, Wintergreen, VA, February 3, 2013.

Local

- “Gender Disparities in Deep Brain Stimulation for Parkinson’s Disease.” Department of Neurology Grand Rounds, University of Colorado, December 6, 2023.
- “Gender Disparities in Deep Brain Stimulation Utilization for Parkinson’s Disease and Essential Tremor.” University of Colorado Residency DEI Talk, January 18, 2023.
- “Parkinson’s Disease Research Updates.” University of Colorado 9th Annual Parkinson Disease Symposium, October, 8, 2022.
- “Parkinson’s Disease Clinical Trial Updates.” Parkinson Disease Research Update, University of Colorado Movement Disorders Center, April 13, 2022.
- “Movement Disorders Division Quality Improvement Initiatives.” Department of Neurology Research Retreat, University of Colorado, June 2, 2021.
- “Gender Disparities in DBS Utilization for Parkinson’s Disease and Essential Tremor.” Presentation at DBS Patient Care Conference. April 6, 2021.
- “Improving Inpatient and Emergency Room Management of Parkinson’s Disease: Reducing Receipt of Contraindicated Medications.” Department of Neurology Research Retreat, University of Colorado, June 3, 2020.
- “Overview of the Movement Section Research.” Department of Neurology Research Retreat, University of Colorado, June 3, 2020.
- “Treatment Strategies for Functional Movement Disorders.” Department of Neurology Grand Rounds, University of Colorado, July 24, 2019.
- “Engaging the Denver Hispanic Community in Parkinson’s Disease Research.” Movement Disorders Research Retreat, University of Colorado, June 12, 2019.
- “Health Care Utilization and Health Outcomes in Parkinson’s Disease.” Department of Neurology Research Retreat, University of Colorado, June 5, 2019.
- “Radiation-induced Parkinsonism.” Case presentation at the Colorado Neurological Society Parkinsonism Case Discussion, Denver, CO, May 29, 2019.
- “Health Care Utilization and Health Outcomes in Parkinson’s Disease.” Movement Disorders Center Conference Series, University of Colorado, November 14, 2018.

- “Cannabis for Parkinson’s Disease.” Chen-Plotkin Laboratory presentation, University of Pennsylvania, June 13, 2018.
- “The Role of the Bitterome and Microbiome in Parkinson’s Disease.” External Review Board meeting for the Philadelphia VA PADRECC, December 2, 2016.
- “Wearable Devices and Smartphone Applications in Parkinson’s Disease.” Fellows Research Presentation series for the University of Pennsylvania and the Philadelphia VA PADRECC, October 14, 2016.
- “Associations Between Parkinson’s Disease and Cancer.” Protocol presentation before University of Pennsylvania Faculty in Epidemiology for the Masters of Science in Clinical Epidemiology program, May 17, 2016.
- “Parkinson’s Disease 101.” Support group meeting sponsored by the Philadelphia VA PADRECC and broadcast to multiple consortium sites in and around Pennsylvania, April 11, 2016.
- “Biomarkers in Parkinson’s Disease: Olfaction and Vitamin D.” Fellows Research Presentation series for the University of Pennsylvania and the Philadelphia VA PADRECC, October 27, 2015.
- “Parkinson’s Disease: Motor and Nonmotor Symptoms.” Support group meeting sponsored by the Philadelphia VA PADRECC and broadcast to multiple consortium sites in and around Pennsylvania, November 3, 2014.
- “Challenges of Enteric and Other Tissue Alpha-synuclein as a Parkinson’s Disease Biomarker.” Department of Neurology Grant Rounds, University of Virginia, May 16, 2014.
- “A Case of Hemichorea/Hemiballism.” Department of Neurology Very Interesting Case Conference, University of Virginia, November 30, 2012.
- “A Case of Thyrotoxic Periodic Paralysis.” Department of Neurology Very Interesting Case Conference, University of Virginia, March 9, 2012.

TEACHING RECORD

Clinic attending duties:

2017 – 2018	Supervision and teaching of Movement Disorders fellows, Geriatric fellows, residents and medical students in the Philadelphia VA PADRECC Movement Disorder Clinic
2018 – Present	Supervision and teaching of Movement Disorders fellows, residents and medical students in the University of Colorado Movement Disorder Clinic.

Presentations to medical students:

2014-2016	“Overview of Movement Disorders.” Gave lectures 2-3 times per year to 3 rd year medical students during their Neurology Clerkship.
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Presentations to residents and fellows:

December 2014	“Overview of Myoclonus.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
December 2014	“Imaging in Movement Disorders.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
January 2015	“Complementary and Alternative Therapies in Parkinson’s disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
March 2015	“Medication Updates in Parkinson’s disease: Rytary.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
April 2015	“Vitamin D and Parkinson’s Disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
June 2015	“Peripheral Neuropathy in Parkinson’s Disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
September 2015	“Psychogenic Movement Disorders.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
September 2015	“DBS Programming: STN.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
November 2015	“New Treatments for Parkinson’s Disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
December 2015	“Skin Manifestations in Parkinson’s Disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
January 2016	“Restless Legs Syndrome.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
March 2016	“Measuring Quality of Life in Parkinson’s Disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.

April 2016	“Cancer Risk in Parkinson’s Disease.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
July 2016	“DBS Complications: Case presentation and Review.” Presentation for the fellows lecture series for the Movement disorder fellows at the Philadelphia VA PADRECC.
October 2017	“Studies of Prognosis and Survival” lecture, part of the Patient-Oriented Research Curriculum for Neurology residents at the University of Pennsylvania.
2019 - Present	Presentations and workshops for the UCD neurology residents as part of the Movement Disorders Block teaching curriculum. Past lectures and workshops include: 2019: “Duopa Workshop,” and “Overview of Parkinson’s Disease.”
2021 – Present	Research lecture series for Fellows, including “Anatomy of Specific Aims”

Mentoring record:

Students

Jarrett Bremer, BS. (Pharmacy student) Faculty mentor.

Abstracts/posters/presentations: “Reducing the Receipt of Contraindicated Medications for Patient’s with Parkinson’s Disease.” Poster at American College of Clinical Pharmacy Annual Meeting, October 2021; “Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease.” Poster at the American Academy of Neurology Annual Meeting, April 2023. **Manuscript:** Golden, C, Sillau, S, Bremmer, J, Worledge, E, Cummins, R, Tremolet de Villers, K, Fullard M. Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease. *Frontiers in Aging Neuroscience*. 2023 (in press)

Elisa Worledge, BS. (Pharmacy student) Faculty mentor.

Abstracts/posters/presentations: “Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease.” Poster at American College of Clinical Pharmacy Annual Meeting, October 2021; “Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease.” Poster at the American Academy of Neurology Annual Meeting, April 2023. **Manuscript:** Golden, C, Sillau, S, Bremmer, J, Worledge, E, Cummins, R, Tremolet de Villers, K, Fullard M. Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease. *Frontiers in Aging Neuroscience*. 2023 (in press)

Camila Davila, BA. (Professional Research Assistant) Faculty mentor.

Manuscript: “Engaging Underrepresented Groups in Parkinson’s disease research: A novel use of Boot Camp Translation.” In Preparation.

Kylan Nelson, BS. (Medical Student, 3rd year) Faculty mentor.

Projects: “Educational resources for patients considering DBS surgery: a cross-sectional review of internet, print and multimedia materials.”

Residents:

Cherry Yu, MD. Faculty mentor. **Abstracts/posters/presentations:**

“Gender Disparities in DBS Use Within the United States.” Presentation at the University of Colorado Neurology Research Retreat, June 2020.

Manuscripts: Deuel, LM, Peterson, R, Sillau, S, Willis, AW, Yu, C, Kern, D, Fullard ME. Gender disparities in deep brain stimulation surgery for Parkinson’s disease and essential tremor. Deep Brain Stimulation. 2023 April;1:26-33. **Current position:** Movement Fellow, Medical University of South Carolina

Lyndsay Babcock, MD. Faculty Mentor through Neurology Resident Mentorship Program.

Grace Vitek, MD. Faculty Mentor through Neurology Resident Mentorship Program.

Movement disorder fellows:

2018 - 2020

Lisa Deuel, MD. Faculty mentor. **Abstracts/posters:** Deuel LM, Kern, DS, Fullard, ME. Sex Disparities in Patients with Essential Tremor Referred for Deep Brain Stimulation Surgery. (Guided poster) American Academy of Neurology 2020 Annual Meeting, May 2020. **Manuscripts:** Deuel, LM, Peterson, R, Sillau, S, Willis, AW, Yu, C, Kern, D, Fullard ME. Gender disparities in deep brain stimulation surgery for Parkinson’s disease and essential tremor. Deep Brain Stimulation 2023 April;1:26-33. **Grants:** University of Colorado Movement Disorder Center Research Grant, “Examining Sex Disparities in Deep Brain Stimulation for Patients with Essential Tremor.” (\$5,000). **Current position:** Faculty, University of Vermont.

2018 - 2020

Jeanne Feuerstein, MD. Faculty mentor. **Manuscripts:** Feuerstein J, Olvera C, Fullard ME. “Treatment Responsiveness of Parkinsonism in Atypical Pantothenate Kinase-Associated Neurodegeneration.” Mov Dis Clin Pract. 2020 Sept 29. Doi: 10.1002/mdc3.13056. **Current position:** Faculty, University of Colorado.

2019 - Present

Caroline Goldin, MD. Faculty mentor. **Abstracts/posters/presentations:** “Reducing the Receipt of Contraindicated Medications for Patient’s with Parkinson’s Disease.” Poster at American College of Clinical Pharmacy

Annual Meeting, October 2021; “Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease.” Poster at the American Academy of Neurology Annual Meeting, April 2023.

Manuscript: Golden, C, Sillau, S, Bremmer, J, Worledge, E, Cummins, R, Tremolet de Villers, K, Fullard M. Reducing the Receipt of Contraindicated Medications for Patients with Parkinson’s Disease. *Frontiers in Aging Neuroscience*. 2023 (in press). **Grants:** University of Colorado Clinical Effectiveness and Patient Safety (CEPS) Small Grants Program, “Improving Inpatient and Emergency Room Care for Patients with Parkinson’s Disease.” (\$12,300).

- 2019 – Present Teresa Lee, MD. Faculty mentor. **Abstracts/Posters:** “Patient Preferences for Deep Brain Stimulation Products in Parkinson Disease: What Really Matters to Them?” Abstract at the American Academy of Neurology Annual Meeting, April 2022. **Grants:** University of Colorado Movement Disorder Center Research Grant, “Smart Phone Applications in Deep Brain Stimulation Evaluation and Follow Up for Parkinson’s Disease.” (\$7,575)
- 2020 – Present Alex Baumgartner, MD. Faculty mentor.
- 2020 – Present Michael Korsmo, MD. Faculty mentor.
- 2021 – Present Heather Heiser, MD. Faculty mentor. **Grants:** University of Colorado Movement Disorder Center Research Grant, “Caregiver expectations for DBS surgery in Parkinson’s disease and its association with caregiver burden.” (\$10,000)
- 2021 – Present Antonia Pusso, MD. Faculty mentor.
- 2022 – Present Brooke Heffernan, MD. Faculty mentor. **Grants:** University of Colorado Movement Disorder Center Research Grant, “Gender differences in risk tolerance for DBS.” (\$10,000).
- 2022 – Present Matthew Woodward, MD. Faculty mentor.
- 2023 – Present Bridget Ollesch, MD. Faculty mentor. **Grants:** University of Colorado Movement Disorder Center Research Grant, “Do differences in risk aversion contribute to gender disparities in utilization of advanced therapies for essential tremor?” (\$5,000)
- 2023 – Present Ondrea Timmerman, DO. Faculty mentor.

Junior faculty:

2020-present Lisa Deuel, MD. Mentor. Movement Disorders Faculty at the University of Vermont (see above)

GRANT SUPPORT (active):

- Building Interdisciplinary Research Careers in Women's Health K12 Program
NIAM SD/K12AR084226 2023-2025
Role: Scholar (co-PI: Regensteiner/Santoro) Total Award: \$270,000
Improving Shared Decision-Making for Women with Parkinson's Disease
The goal of this study is to pilot test a gender-sensitive, individualized decision aid and examine its implementation.
- University of Colorado Movement Disorders Center Research Grant 2023-2024
(PI: Ollesch) Total Award: \$5,000
Role: Primary Mentor
Do differences in risk aversion contribute to gender disparities in utilization of advanced therapies for essential tremor?
The goal of this study is to determine if there are gender differences in risk aversion for patients with essential tremor considering DBS. We will also examine risk preference stability of risk preference in other contexts.
- Michael J. Fox Foundation Research Award 2021-2024
Role: Co-I Total Award: \$58,415
Diversifying Research through Inclusivity and Engagement in Parkinson's Disease (DRIVE PD)
The goals of this study are to identify and better understand the barriers to specialty care and research within the Denver Hispanic and Latino Community.
- NIH/NINDS Loan Repayment Program 2022-2024
Role: PI Total Award: \$100,000
Decision Support to Reduce Gender Disparities in Older Adults with Neurologic Disease: Deep Brain Stimulation as a Model
The Loan Repayment Program pays up to \$50,000 annually of a researcher's qualified educational debt in return for a commitment to engage in NIH mission-relevant research.

GRANT SUPPORT (completed):

- Lorna G. Moore Faculty Launch Award 2022-2023
Role: PI Total Award: \$40,000
Improving Shared Decision-Making for Women with Parkinson's Disease
The goal of this study is to develop a gender-sensitive, individualized decision aid to improve decisional outcomes for women.

- Michael J. Fox Foundation FIRE-UP PD II Research Award 2022-2023
 Role: PI Total Award: \$32,500
Foster Inclusivity in Research Engagement for Underrepresented Populations in Parkinson's Disease
 The goals of this study are to assess barriers to research within the Denver Hispanic and Latino Community.
- University of Colorado Movement Disorders Center Research Grant 2022-2023
 (PI: Heffernan) Total Award: \$10,000
 Role: Primary Mentor
Examining Gender Differences in Risk Tolerance
 The goals of this study are to determine if there are gender differences in risk tolerance in general, related to health and related specifically to DBS and factors associated with risk tolerance.
- Davis Phinney Foundation Research Award
 Role: PI Total Award: \$135,000 2021-2023
Removing Barriers to Deep Brain Stimulation Surgery for Women with Parkinson's Disease
 The goals of this study are to identify the barriers women face when contemplating DBS surgery and to develop interventions to remove these barriers.
- University of Colorado Neurology Intradepartmental Grant
 Role: PI Total Award: \$20,000 2021-2022
Examining Gender Differences in Therapy Preference and Risk Tolerance in Parkinson's Disease.
 The goals of this study are to determine patient and sociodemographic factors that contribute to gender differences in risk tolerance.
- Auburt and Barbara Mowry Philanthropic gift 2021-2022
 Role: PI Total Award: \$21,238
Reducing the receipt of contraindicated medications for Parkinson's disease in the outpatient setting.
 The goals of this study are to expand on the inpatient best practice alert and adapt it to the outpatient setting.
- University of Colorado Movement Disorders Center Research Grant 2021-2022
 (PI: Heiser) Total Award: \$10,000
 Role: Primary Mentor
Caregiver expectations for DBS surgery in Parkinson's Disease and its association with caregiver burden.
 The goals of this study is to determine if a mismatch between caregiver expectations for DBS surgery and reality contribute to the lack of improvement in caregiver burden following DBS surgery.

- UCH Clinical Effectiveness and Patient Safety Grant 2020-2021
 Role: PI Total Award: \$12,300 COMPLETED
Improving Inpatient and Emergency Room Management for Patients with Parkinson's Disease.
 The goals of this study are to determine the factors associated with receipt of contraindicated medications for patients with Parkinson's disease, as well as develop a best practice alert to reduce the receipt of these medications.
- Clinical Research Training Fellowship in Parkinson's Disease 2017-2021
 Role: PI Total Award: \$130,000 COMPLETED
Wearable Devices and Smartphone Applications in Parkinson's Disease.
 This award is funded by the American Academy of Neurology, the American Brain Foundation and the Parkinson's Foundation. The goal of the study is to correlate features from wearable devices and smart phone applications with validated measures of motor symptoms in Parkinson's disease.
- Colorado Department of Public Health and Environment (PI: Leehey) 2015-2021
 Role: Sub-PI COMPLETED
A randomized, double-blind, placebo-controlled crossover study of tolerability and efficacy of Cannabidiol (CBD) on tremor in Parkinson's disease
 The purpose of this randomized, double blind, placebo-controlled crossover study is to look at the tolerability and efficacy of cannabidiol on tremor and other aspects of Parkinson's disease.
- Michael J. Fox Foundation FIRE-UP PD Research Award 2019-2020
 Role: PI Total Award: \$45,000 COMPLETED
Engaging the Denver Hispanic Community in Parkinson's Disease Research.
 The goals of this study are to assess barriers to research within the Denver Hispanic Community and to examine the use of Boot Camp Translation as a method to increase engagement in Parkinson's disease research.
- University of Colorado Movement Disorders Center Research Grant 2019-2020
 (PI: Lee) Total Award: \$7,575 COMPLETED
 Role: Primary Mentor
Smartphone Applications in Deep Brain Stimulation Evaluation and Follow-up for Parkinson's disease.
 The goals of this study are to correlate features from smartphone applications with validated measures of motor symptoms in Parkinson's disease, as well as determine if changes in certain features can be used to determine levodopa responsiveness for DBS evaluation.
- University of Colorado Movement Disorders Center Research Grant 2018-2019
 (PI: Deuel) Total Award: \$5,000 COMPLETED
 Role: Primary mentor

Examining Sex Disparities in Deep Brain Stimulation Surgery for Patients with Essential Tremor.

The goals of this study are to determine patient and provider factors associated with sex disparities in referral patterns for Deep Brain Stimulation Surgery.

- NIH/NINDS (Feldman, PI) T32-NS061779-07 2015-2017
Role: Neurology fellow researcher Total Award: \$160,000 COMPLETED
Vitamin D in Parkinson's Disease.
This award is an institutional training grant for the Masters of Science in Clinical Epidemiology at the University of Pennsylvania. The goal of the research project is to determine if lower vitamin D level are associated with an increased risk of developing Parkinson's disease.

Industry and Foundation Sponsored Studies

- Michael J. Fox Foundation: PPMI 2021-present
Role: Site PI Total Award: \$146,737
Parkinson's Progression Markers Initiative
PPMI aims to identify biological markers of Parkinson's risk, onset and progression.
- Parkinson Foundation: TOPAZ
Role: Site PI
Trial of Parkinson's and Zoledronic Acid
This is a home-based placebo-controlled study of a single infusion of zoledronic acid for the prevention of fractures in men and women with Parkinson's disease.
- Neurocrine Biosciences: OPTI-ON
Role: Site PI Total Award: \$26,849.2 2021-2022
This is a phase 4, open label observational study that aims to describe the treatment patterns and clinical outcomes observed with use of opicapone as adjunctive treatment to carbidopa/levodopa in Parkinson's disease patients experiencing OFF episodes with motor fluctuations.
- Impax Laboratories, LLC 2019-2022
Role: Site PI Total Award: \$100,920
A randomized controlled study to compare the safety and efficacy of IPX203 with immediate-release carbidopa-levodopa in Parkinson's disease patients with motor fluctuations.
- Parkinson Study Group: WATCH-PD 2019-2022
Role: Site-PI Total Award: \$132,689
A Multi-center, Prospective, Longitudinal, Digital Assessment Study of Disease Progression in Subjects with Early, Untreated Parkinson Disease (PD)
The main objective of this study is to compare the ability of measurements obtained from wearable digital devices (including sensors, smart phones and smart watches) with traditional clinic exams and questionnaires to measure progressive changes in movement,

thinking (cognition), and mood, activities of daily living and quality of life in individuals with early, untreated Parkinson disease over a one-year period.

BIBLIOGRAPHY

Published work available in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/16SGeUHRGi2Mrw/bibliography/public/>

Peer-reviewed articles:

1. Golden, C, Sillau, S, Bremmer, J, Worledge, E, Cummins, R, Tremolet de Villers, K, **Fullard M**. Reducing the Receipt of Contraindicated Medications for Patients with Parkinson's Disease. *Frontiers in Aging Neuroscience*. 2023 (in press).
2. Memon, AA, Gelman, K, Melott, J, **Fullard, M**, Catiul, C, Miocinovic, S, Amara, AW. A systematic review of health disparities research in deep brain stimulation surgery for Parkinson's disease. *Frontiers in Human Neuroscience: Brain Imaging and Stimulation*. 2023 (in press).
3. Bayram E, Holden SK, **Fullard M**, Armstrong MJ; Lewy Body Dementia Association Community Engagement Working Group. Race and Ethnicity in Lewy Body Dementia: A Narrative Review. *J Alzheimers Dis*. 2023;94(3):861-878.
4. Deuel, L, Peterson, R, Sillau, S, Willis, A, Yu, C, Kern, D and **Fullard, ME**. Gender Disparities in Deep Brain Stimulation Surgery for Parkinson Disease and Essential Tremor. *Deep Brain Stimulation* 2023 April;1:26-33.
5. Feuerstein, J, Olvera, C and **Fullard, ME**. Treatment Responsiveness of Parkinsonism in Atypical Pantothenate Kinase-Associated Neurodegeneration: Worth a treatment Trial. *Movement Disorders Clinical Practice*. 2020 Sept 29;7(Supp3):S71-S73.
6. **Fullard, ME**, Thibault, D, Zisling, H, Crispo, J and Willis, A. Parkinson Disease Associated Differences in Elective Orthopedic Surgery Outcomes: A National Readmissions Database Analysis. *Journal of Parkinson's Disease*. 2020;10(4):1577-1586.
7. **Fullard ME**, Duda JE. A Review of the Relationship Between Vitamin D and Parkinson Disease Symptoms. *Front Neurol*. 2020;11:454.
8. Schneider RB, Jimenez-Shahed J, Thibault, DP, Mantri S, **Fullard ME**, Burack MA, Chou KL, Spindler M, Jermakowicz WJ, D'Haese P, York MK, Kirk JC, Schwalb JM, Espay AJ, Shih LC, Simon DK, Hunter C, Abraham DS, Crispo JAG, Willis AW on behalf of the Parkinson Study Group Health Care Outcomes and Disparities Working Group (HCODWG) and the Registry to Advance DBS for PD (RAD-PD). Acute readmission following deep brain stimulation surgery for Parkinson's disease: A Nationwide Analysis. *Parkinsonism & Related Disorders*. 2020;70:96-102.
9. Posavi M, Diaz-Ortiz M, Liu B, Swanson CR, Skrinak RT, Hernandez-Con P, Amado DA, **Fullard M**, Rick J, Siderowf A, Weintraub D, McCluskey L, Trojanowski JQ, Dewey RB Jr, Huang X, Chen-Plotkin AS. Characterization of Parkinson's disease using blood-based biomarkers: A multicohort proteomic analysis. *PLoS Med*. 2019 Oct;16(10)
10. **Fullard ME**, Mantri S, Beck J, Willis AW. State-level prevalence, health service use, and spending vary widely among Medicare beneficiaries with Parkinson disease. *NPJ Parkinson's Disease*. 2019 Jan 23;5:1.

11. Mantri S, **Fullard ME**, Gray SL, Hubbard RA, Weintraub D, Hennessy S, Willis AW. Patterns of dementia treatment and frank prescribing errors in Parkinson's disease. JAMA Neurology. 2019 Jan 1;76(1):41-49
12. Chahine LM, Dos Santos C, **Fullard M**, Scordia S, Weintraub D, Erus G, Rosenthal L, Davatzikos C, McMillan CT. Modifiable vascular risk factors, white matter disease, and cognition in early Parkinson's disease. Eur J Neurol 2019 Feb;26(2):246-e18.
13. **Fullard, M.E.**, Thibault, D.P., Todaro, V., Foster, S., Katz, L., Morgan, R., Kern, D.S., Schwalb, J.M., Urrea Mendoza, E., Dahodwala, N., Shulman, L., and Willis, A.W. Sex disparities in health and health care utilization after Parkinson diagnosis: Rethinking PD associated disability. Parkinsonism Relat Disord. 2018 March;48:45-50.
14. Mantri S, **Fullard ME**, Duda JE and Morley, JF. Physical Activity in Early Parkinson Disease. Journal of Parkinson's Disease. 2018 8(1): 107-111.
15. **Fullard, M.E.**, Thibault, D.P., Hill, A., Fox, J., Bhatti, D., Burack, M.A., Dahodwala, N., Kern, D.S., Klepitskava, O.S., Urea-Mendoza, E., Myers, P., Nutt, J., Rafferty, M.R. Schwalb, J.M., Shulman, L.M., Willis, A.W. on behalf of the Parkinson Study Group Healthcare Outcomes and Disparities Working Group. Utilization of Rehabilitation Therapy Services in Parkinson's disease in the United States. Neurology. 2017 Sep 12;89(11):1162-1169.
16. **Fullard, M.E.**, Xie, S.X., Marek, K., Stern, M.B., Jennings, D., Siderowf, A., Willis, A., and Chen-Plotkin, A. Vitamin D in the Parkinson's Associated Risk Study (PARS). Movement Disorders. 2017 Nov;32(11):1636-1640.
17. **Fullard, M.E.**, Morley, J.F., and Duda, J.E. Olfactory dysfunction as an early biomarker in Parkinson's disease. Neuroscience Bulletin. 2017 Oct;33(5):515-525.
18. **Fullard, M.E.**, Tran, Tran, B., Xie, SX, Toledo, JB, Scordia, C, Linder, C, Purri, R, Weintraub, D, Duda, JE, Chahine, LM, and Morley, JF. Olfactory impairment predicts cognitive decline in early Parkinson's disease. Parkinsonism Relat Disord. 2016 Apr; 45-51.
19. Chahine LM, Xie SX, Simuni T, Tran B, Postuma R, Amara A, Oertel WH, Iranzo A, Scordia C, **Fullard M**, Linder C, Purri R, Darin A, Rennert L, Videnovic A, Del Riva P, Weintraub D. Longitudinal changes in cognition in early Parkinson's disease patients with REM sleep behavior disorder. Parkinsonism Relat Disord. 2016 Jun;27:102-106.
20. Ding, D, **Fullard M**, Jarrell HS, Jones DE. Intramedullary spinal cord metastasis from salivary ductal carcinoma of the parotid gland mimicking transverse myelitis in a patient with radiographically isolated syndrome. J Neurol Sci. 2014 Jan 14: 336(1-2); 265-8.

Book Chapters, invited articles and reviews:

1. Walker, IM, **Fullard, ME**, Morley, JF, Duda JE. Olfaction as an early marker of Parkinson's disease and Alzheimer's disease. Handb Clin Neurol. 2021;182:317-329. Doi: 10.1016/B978-0-12-819973-2.00030-7.

Scientific abstracts:

1. **Fullard, M**, Morris, M, Dafoe, A, Shelton, E, Kern, D, Matlock D. Improving Shared Decision-Making for Women with Parkinson's Disease. Abstract at the American

- Academy of Neurology Annual Meeting, April 2023.
2. Goldin, C, Worledge, E, Bremmer, J, Tremolet de Villers, K, Cummins, R and **Fullard, M**. Reducing the Receipt of Contraindicated Medications for Patients with Parkinson's Disease. Abstract at the American Academy of Neurology Annual Meeting, April 2023.
 3. Lee, T, **Fullard, M**, Rogers, T, Ojemann, S, Kern, D. Patient Preferences for Deep Brain Stimulation Products in Parkinson Disease: What Really Matters to Them? Abstract at the American Academy of Neurology Annual Meeting, April 2022.
 4. Worledge, E, Bremmer, J, Goldin, C, Tremolet de Villers, K, **Fullard M**. Reducing the Receipt of Contraindicated Medications for Patient's with Parkinson's Disease. Abstract at the American College of Clinical Pharmacy Annual Meeting, October 2021.
 5. Deuel L, Yu C, Sillau S, Hoyt B, Kern D, **Fullard M**. Sex Disparities in the Utilization of Deep Brain Stimulation for Essential Tremor and Parkinson Disease. Abstract at the American Academy of Neurology virtual meeting, April 2021.
 6. Leehey M, Liu Y, Sillau S, Fischer S, Klawitter J, Sempio C, **Fullard M**, Hawkins T, Seeberger L, Digulio E, Vu D, Seawalt T, Chin G, Bainbridge J. Tolerability and Efficacy of Cannabidiol on Motor Symptoms in Parkinson's Disease: Interim Report on Tolerability. Abstract at the American Academy of Neurology virtual meeting, April 2021.
 7. **Fullard M**, Matthewson G, Holden S, Mullen R, Parra Gonzalez J, Feuerstein J, Hemley H, Siddiqi B, Seeberger L. Engaging the Denver Hispanic Community in Parkinson's Disease Research. Scientific abstract at the virtual International Movement Disorders Congress, September 2020.
 8. Maureen L, Liu Y, Sillau S, Fischer S, Klawitter J, Sempio C, **Fullard M**, Hawkins T, Seeberger L, Digulio E, Vu D, Baker S, Seawalt T, Chin G and Bainbridge J. A Randomized, Double-Blind, Placebo Controlled, Parallel Study of Tolerability and Efficacy of Cannabidiol on Motor Symptoms in Parkinson Disease: Interim Report on Tolerability. Abstract at the 30th annual ICRS symposium on the Cannabinoids in Galway, Ireland, July 2020 (in-person cancelled due to COVID).
 9. Deuel, LM, Kern, DS and **Fullard, ME**. Sex Disparities in Patients with Essential Tremor Referred for Deep Brain Stimulation. Scientific research poster at the American Academy of Neurology virtual meeting, April 2020.
 10. Lidstone S, Costa-Parke M, Ercoli T, Holden S, **Fullard M**, Stone J. The association of gender, age of onset and phenotype in Functional Movement Disorders: The FMD-GAP Study. Scientific research poster at the American Academy of Neurology virtual meeting, April 2020.
 11. **Fullard, M.E.**, Thibault, D., Zisling, H., Crispo, J., Willis, A.W. Outcomes of Elective Orthopedic Surgery in Parkinson' disease – a Nationwide Study. Scientific research poster at the American Academy of Neurology meeting in Philadelphia, PA May 2019.
 12. Mendizabal, A, **Fullard, ME**, Willis, A. Characteristics of Homebound Medicare Beneficiaries with Parkinson Disease. Scientific research poster at the American Academy of Neurology meeting in Philadelphia, PA May 2019.
 13. **Fullard, M.E.**, Mantri, S., Beck, J., Willis, A.W. State-level prevalence, health service use and spending varies widely among Medicare beneficiaries with Parkinson disease. Platform presentation and scientific research poster at the American Neurological Association meeting in Atlanta, GA October 2018.
 14. Mantri S, **Fullard ME**, Gray SL, Hubbard RA, Weintraub D, Hennessy S, Willis AW.

- Patterns of dementia treatment and frank prescribing errors in Parkinson's disease. Scientific research poster at the American Neurological Association meeting in Atlanta, GA October 2018.
15. **Fullard, M.E.**, Thibault, D.P., Todaro, V., Foster, S., Katz, L., Morgan, R., Kern, D.S., Schwalb, J.M., Urrea Mendoza, E., Dahodwala, N., Shulman, L., and Willis, A.W. Sex disparities in health and health care utilization after Parkinson diagnosis: Rethinking PD associated disability. Scientific research poster at the American Academy of Neurology Meeting in Los Angeles, California, April 2018.
 16. **M. Fullard**, S. Xie, K. Marek, M. Stern, D. Jennings, A. Siderowf, A. Chen-Plotkin. Vitamin D in the Parkinson's Associated Risk (PARS) Study. *Mov Disord.* 2017; 32 (suppl 2).
 17. S. Mantri, **M. Fullard**, J. Duda, J. Morley. Physical Activity in Early Parkinson Disease. *Mov Disord.* 2017; 32 (suppl 2).
 18. **Fullard, ME**, Huss, DS, Barrett, MJ, Manning, CA, Sperling, S, Shah, B, Elias, WJ, Turkheimer, E and Harrison, MB. Predictors of neurobehavioral outcomes in bilateral subthalamic nucleus deep brain stimulation surgery. Scientific research poster at the American Neurological Association Meeting in Baltimore, Maryland, October 2016.
 19. **M.E. Fullard**, D.P. Thibault, A. Hill, J. Fox, A.W. Willis. Underutilization of physiotherapy for Parkinson's disease in the United States. *Mov Disord.* 2016; 31 (suppl 2).
 20. **Fullard M**, Baochan T, Xie S, Scordia C, Linder C, Purri R, Weintraub D, Duda J, Chahine L, Morley J. Olfactory Function Predicts Cognitive Deficits and Decline in Early Parkinson's disease. Abstract presented at the American Academy of Neurology Meeting in Vancouver, BC, Canada, April 2016.
 21. **Fullard, M.E.**, Weintraub, D., Duda, J.E., Morley, J.F. (2015). Olfaction and nonmotor symptoms (NMS) in subjects with scans without evidence of dopaminergic deficit (SWEDDs). *Movement Disorders* 30 Suppl 1: 399.
 22. **Fullard, M.E.**, Weintraub, D., Duda, J.E., Morley, J.F. (2015). Relationship between olfaction, motor and nonmotor symptoms and dopamine transporter binding in de novo PD *Movement Disorders* 30 Suppl 1: 400.
 23. **Fullard M**, Urbano RC, Temple PC, Lutenbacher M and Walsh WF. Recurrent preterm birth in Tennessee between 1996 and 2005. Scientific research poster at the 13th Annual Maternal and Child Health Epidemiology (MCH EPI) Conference in Atlanta, GA, December 2007.
 24. Au C., **Fullard M.**, Aschner M., Nass R. Dopamine neuron degeneration in *c. elegans*: identification of genetic and chemical modulators in a novel model of Parkinson's disease and manganism. *Neural Plast* 2007;73079: 7.
 25. **Fullard M**, Fallen K, Andresen JM, McManus CR, Marvanova M and Nass R. Manganese-induced dopamine neurodegeneration in *C. elegans*: pharmacogenetic analysis in a novel model of manganism. *Neurotoxicology* (2006).
 26. Marvanova, M., Ding, T., **Fullard, M.**, Nass, R. Incorporating toxicogenomics to evaluate environmental neurotoxins: dopamine neuron cell death in *C. elegans* models of human manganism and amyotrophic lateral sclerosis/parkinsonism dementia complex International Worm Meeting (2005).
 27. Marvanova, M., **Fullard, M.**, Nass, R. Heavy metals and a pesticide confer DA neuron cell death and amplify the neurodegeneration in *C. elegans* models for Parkinson's

disease West Coast Worm Meeting (2004).

Other media:

1. “Removing Barriers for DBS for Women with Parkinson’s disease.” An interview with the Davis Phinney Foundation on preliminary findings for first year of our study. March 2022.
2. “A Video Interview with Michelle Fullard on Removing Barriers to Deep Brain Stimulation Surgery for Women with Parkinson’s disease.” An interview with the Davis Phinney Foundation about our study. April 2021.
3. “Smartwatch Sensors Effectively Capture Symptoms in Parkinson’s Patients.” Interviewed for article, March 2021.
4. “Parkinson’s Disease Prevalence Varies Significantly Between States.” Neurology Reviews. Press article about our study on Parkinson’s disease prevalence within the United States. April 2018.
5. **Fullard, ME.** “Wearable Devices and Smart Phone Applications.” Transmitter Article. Parkinson’s Disease and Movement Disorders Center Newsletter of Penn Medicine. Volume 12. Number 1. Spring 2017.
6. “Physical Therapy Underused in Parkinson’s”. Medpage Today. Press article about our study on therapy utilization for Parkinson’s disease. June 2016.
7. Journal of Neurology Podcast Panel. Interview authors of highlighted articles. The podcast averages greater than 50,000 downloads per week (2013-2019)