

JOHN HARVEY (“JOVE”) GRAHAM, PH.D.

Geisinger Center for Pharmacy Innovation and Outcomes
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I. EDUCATION

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Swarthmore College	B.S.	06/1996	Engineering
Swarthmore College	B.A.	06/1996	English, Theatre Studies
University of California, Berkeley	M.S.	01/2000	Mechanical Engineering
University of California, San Francisco & University of California, Berkeley	Ph.D.	05/2002	Bioengineering
Johns Hopkins University, Summer Institute	[not for degree]	07/2011	Biostatistics
Johns Hopkins University, Summer Institute	[not for degree]	07/2013	Biostatistics

II. PERSONAL STATEMENT

I am a Ph.D. engineer-by-training with a strong math/analytic background who is interested in improving healthcare outcomes in the United States. I currently work at Geisinger, a not-for-profit integrated health system in central and northeastern Pennsylvania, as a researcher in the Center for Pharmacy Innovation and Outcomes, primarily as a study designer and biostatistician. My research focus has been on highly interdisciplinary patient-level outcomes research, collaborating across clinical departments and with Geisinger’s insurance plan to leverage existing data for large-scale observational studies of clinical effectiveness. My specific area of expertise is the design and analysis of these (typically non-randomized) studies to select appropriate comparison groups and reduce the effects of confounding variables and other sources of bias. In addition to my duties as an independent researcher, I have also served Geisinger Health System in several other supporting roles over the years, including scientific leader for the Investigator-Initiated Research Operations Core and as Operations Manager for the Biostatistics & Research Data Core. Prior to joining Geisinger, I worked for the U.S. Food and Drug Administration in the Center for Devices and Radiological Health and have over 10 years of experience evaluating new medical devices and developing standardized evaluation methods. I have approximately 200 peer-reviewed publications and presentations, and my independent research has been funded by PCORI, AHRQ, FDA, The Commonwealth Fund and the Orthopedic Trauma Association, among others. I also serve as an adjunct professor in the Biomedical Engineering Department at Bucknell University, teaching biostatistics and design.

II. WORK EXPERIENCE

Geisinger Health System, Danville, PA (2006-present)

- *Associate Professor, Center for Pharmacy Innovation and Outcomes* (July 2019-present). (1) Independent design and implementation of studies, primarily focused on medication use and adherence using observational electronic health record or administrative data to compare patient outcomes. Providing mentorship, leadership, statistical design and analysis support for projects across the Center. (2) Consulting and mentoring of physicians, fellows and residents to develop research questions into study plans.
- *Assistant Professor, Center for Pharmacy Innovation and Outcomes* (December 2016-June 2019). (1) Independent design and implementation of studies, primarily focused on medication use and adherence using observational electronic health record or administrative data to compare patient outcomes. Providing statistical design and analysis support for projects across the Center. (2) Consulting and mentoring of physicians, fellows and residents to develop research questions into study plans.

- *Investigator I and Director of Clinical Research Project Development, Center for Health Research (October 2012-December 2016).* (1) Independent design and implementation of clinical research studies, primarily using observational electronic health record or administrative data to compare patient outcomes across different surgical & pharmacological treatments. Work included study of Patient Centered Medical Home models, home telemonitoring devices, orthopedic surgical options and urological surgical treatments. (2) Consulting and mentoring of physicians, fellows and residents to develop research questions into study plans. (3) Other database design, development of outcome measures, and SAS statistical programming and analysis in support of clinical research studies and infrastructure.
- *Investigator I and Operations Manager, Biostatistics & Research Data Core, Center for Health Research (January-October 2012).* Supervisory responsibility for team that performed clinical data extraction, recoding and biostatistical analysis to support internal and externally-funded research projects for the Geisinger Center for Health Research and Geisinger Clinic. Management of 8 research data analysts/programmers and 4 Ph.D./Master's level biostatisticians on the team, working with EpicCare electronic health record (EHR), billing, claims and other data sources. I also led development of Geisinger's "Virtual Data Warehouse" for collaborative multi-site studies with other health systems in the HMO Research Network. This was a 75% appointment, with the remaining 25% as an independent Research Investigator I (see description below).
- *Investigator I, Center for Health Research (October 2006-January 2012).* Responsibilities include research design, analysis, publishing and authorship of grant proposals to support health services research and comparative effectiveness studies of surgical and medical treatments. Work included: (1) Longitudinal modeling of outcomes from Patient Centered Medical Home (PCMH) initiatives, and how variation in PCMH implementation affects outcomes, and PCMH post-discharge outcomes of hip fracture patients; (2) designing studies with clinical and surgical departments within Geisinger Health System to collect functional outcomes from patients and examine effects of patient factors and treatment options on outcomes; (3) analysis of longitudinal, observational data from electronic health records and claims databases for causal inference of treatment effects in non-randomized settings.

Food and Drug Administration and Oak Ridge Institute for Science and Engineering (October 2006-January 2012), Research Fellow/Staff Fellow. Through a fellowship program, I provided consultative services to the Food and Drug Administration (FDA) to review pre-market applications to evaluate safety and effectiveness of new spinal implant devices. This was a part-time (20% appointment) consulting position that reimbursed Geisinger Health System for my time & effort.

Food and Drug Administration (2003-2006), Mechanical Engineer, Division of Solid and Fluid Mechanics, Office of Science and Engineering Laboratories, Center for Devices and Radiological Health, Rockville, MD. Responsibilities included review of medical device pre-market applications to evaluate safety and effectiveness of new devices, evaluation of adverse event reports, development of standard test methods for devices and original laboratory research.

- Member of spine and heart valve review teams, collaborating with surgeons, statisticians, biologists, chemists and engineers to evaluate new devices.
- Provided FDA with technical reviews of over 100 pre-market submissions for spinal fusion and non-fusion devices, orthopedic implants, heart valves and other cardiovascular devices.
- Initiated research program to help agency regulate products related to vertebroplasty, a minimally-invasive treatment for spinal fracture repair, and received \$57,000 grant for this research area.
- Frequent communication with device manufacturers via email, phone and face-to-face meetings regarding safety and effectiveness of their products.
- Liaison to ASTM standards committee for writing standard test methods for medical materials and devices.

University of California, Berkeley (1997-2002), *Graduate Student Researcher, Medical Polymers & Biomaterials Group*, Berkeley, CA. Responsibilities included extensive mechanical testing of materials and medical device products (e.g. total joint replacements) to measure mechanical properties such as strength, elasticity, fracture toughness and creep.

- Member of interdisciplinary research team including orthopaedic surgeons, surgical residents and engineers.
- Managed a retrieval laboratory for failure analysis of explanted orthopaedic devices including shoulder and hip replacements.

San Francisco General Hospital (1998), *Research Assistant, Orthopaedic Biomechanics Laboratory*, San Francisco, CA. Responsibilities included software development and experimental design to operate infrared motion-capture system to measure body positions and joint angles of young and elderly subjects during forward-reaching tasks. Development of biomechanical model to correlate joint strength and flexibility with task performance.

University of California, Berkeley (1998), *Research Assistant, Department of Integrative Biology*, Berkeley, CA. Responsibilities included design and construction of experimental apparatus to measure force-elongation (stress-strain) dynamics of individual muscle fibers during stretching. Software development to control motors and collect real-time stress-strain data regarding physiological and mechanical behavior of single-fiber muscle cells.

NSF Laboratory for Research Into the Structure of Matter (1995), *Research Fellow*, Philadelphia, PA. Responsible for dynamic mechanical testing and analysis of prosthetic finger joints to study physiological effects of implantation on mechanical properties. Conducted viscoelastic testing and assisted with animal implant/explant surgeries.

Swarthmore College (1993-94), *Laboratory Assistant, Department of Engineering*, Swarthmore, PA. Responsible for design and assembly of ultrasonic cavitation equipment testing with the goal of developing a flow-through system for water purification by ultrasonically eliminating *E.coli* bacteria. Machined small components including piezoelectric hydrophonic pressure transducers and conducted experiments by running bacteria through the sonicator under varying input conditions.

III. TEACHING EXPERIENCE

Bucknell University, *Adjunct Professor, Department of Biomedical Engineering*. 2014-present. This part-time teaching position was arranged courtesy of Geisinger Health System and Bucknell University.

- *BMEG 226: Statistical Methods for Biomedical Engineering (2015, 2016, 2017, 2019)* – semester-long freshman-level course (12-16 students) to teach important statistical concepts and methods, with a lab using R statistical software. Topics include: descriptive summaries and graphical displays; probability and conditional probability; hypothesis testing; traditional parametric testing (Student t, binomial, z, ANOVA, chi-square); logarithmic transformations and nonparametric testing; presentation of results and critical interpretation of literature; linear regression; logistic regression; experimental design; and advanced topics (confounding, propensity scoring, Monte Carlo simulation).
- Series of seminars and team mentoring activities regarding technical standards and FDA regulation of medical devices to students and faculty in the biomedical engineering program, and to students in junior-level and senior-level design courses.

FDA/CDRH Office of Device Evaluation, *Guest Lecturer, Division of General, Restorative and Neurologic Devices, Orthopedic Devices Branch*, Rockville MD. 2004-2006. Presentations of lectures on spinal implant testing methods, discussing and explaining a number of the most important standards used for spinal devices. Each lecture consists of a two-hour slide presentation giving an overview and technical details of the testing techniques and safety considerations for each category of device, including extensive question-and-answer sessions with device regulators.

University of California, Berkeley, *Graduate Student Instructor, Department of Mechanical Engineering*, Berkeley, CA. January-June 2001. Graduate student instructor for senior-level bioengineering course

titled *Structural Aspects of Biomaterials*, focusing on safety testing, mechanical behavior, and characterization of materials used in medical devices. Preparation and presentation of three 90-minute lectures, leadership of group discussion sections, and one-on-one tutoring assistance.

Swarthmore College, *Writing Associate, Department of English Literature*, Swarthmore, PA, 1994-96. Responsible for instructing classes of freshman engineering students in the style and content of engineering reports through review, written critiques and one-on-one conferences to discuss first drafts of reports and techniques for improving their written communication skills.

IV. HONORS AND AWARDS

- Pennsylvania Orthopaedic Society 2nd Place Resident/Fellow Award (2021) for team paper: Hayes-D, Graham-J, Rudararaju-R, Kolessar-D, "Robotic assisted technology in knee arthroplasty: healthcare costs and utilization"
- ASHP Award for Innovation in Pharmacy Practice (2018) for team paper, "Medication therapy disease management: Geisinger's approach to population health management," with Jones-L, Greskovic-G, Grassi-D, Sun-H, Gionfriddo-M, Murray-M, Manickam-K, Nathanson-D, Wright-E, Evans-M.
- Robert E. Fairer Award for service, ASTM International (2016)
- Finalist in Poster Competition representing statistical methods category, HMO Research Network Annual Meeting (2014)
- U.S. Senate Special Committee on Aging, Recognition of Excellence in Aging Research (2009)
- FDA/CDRH Special Recognition Award for innovative research (2006)
- FDA Employee Recognition Award Recipient (Feb 2004, March 2005, July 2005, June 2006)
- The Whitaker Foundation Graduate Fellowship in Biomedical Engineering (1997-2002) – full tuition plus living stipend of \$17,000-\$18,966 per year for graduate studies in biomedical engineering
- Swarthmore College McCabe Achievement Scholarship (full tuition for college) (1992-96)
- Society for Biomaterials Student Travel and Development Award – Honorable Mention (2001)
- Western Orthopaedic Association Alonso J Neufeld Award for best paper (1998)
- National Science Foundation Graduate Research Fellowship (1996) – full tuition plus living stipend of \$14,400 per year for graduate studies in engineering (declined)
- Georgia Institute of Technology President's Fellowship (1996) – full tuition plus living stipend of \$18,500 per year for graduate studies in biomechanical engineering at Georgia Tech (declined)
- University of Pennsylvania Presidential Fellowship (1996) – full tuition plus living stipend of \$16,500 per year for graduate studies in materials science at the University of Pennsylvania (declined)
- Phi Beta Kappa – national academic honor society (inducted 1996)
- Tau Beta Pi – national engineering honor society (inducted 1995)
- Sigma Xi – national scientific research honor society (inducted 1995)
- Rotary Club of Media Scholarship (1992-96) – \$1000 per year
- Pennsylvania State Parks Memorial Fund Scholarship (1993-95) – \$500 per year

V. RESEARCH SUPPORT

Ongoing Research Support (4 total)

1. Patient Centered Outcomes Research Institute (PCORI)

Comparison of Type 2 Diabetes Pharmacotherapy Regimens Using Targeted Learning
2021-2024

\$403,955 Total

This is an observational cohort study to compare the effects of newer second-line antidiabetic therapies on outcomes of interest (e.g., cardiovascular death or nonfatal stroke) and the timing of their initiation.

Role: Site Principal Investigator (10% effort)

2. Pfizer, Inc.

Outcomes of the Osteoarthritis Population in an Integrated Health System

2019-2022

\$548,757 Total

This is a retrospective study to describe the patient characteristics, treatment patterns, and outcomes of several subgroups of the population of Geisinger Health patients with osteoarthritis.

Role: Principal Investigator (10% effort)

3. Hematology-Oncology Pharmacy Association (HOPA)

Machine Learning Approach to Venous Thromboembolism Prediction in Newly Diagnosed Patients With Cancer Receiving Chemotherapy

2021-23

\$92,000

This is a project using retrospective data to test new machine learning models for predicting risk of thromboembolytic events in cancer patients receiving new chemotherapy.

Role: Co-Investigator (PI: Ben Andrick, PharmD) (10% Effort)

4. PA Department of Health

Pre-emptive Pharmacogenomics Testing Among Geriatric Patients

2021-2025

\$260,474

This is a prospective study to measure process and outcomes around pharmacogenomic testing in Geisinger's aging population of patients.

Role: Co-Investigator (PI: Ryley Uber, PharmD) (5% effort)

Completed Research Support (35 total)

5. Medtronic, Inc.

Common Data Model and Devices Collaboration Project

2019-2020

\$149,484 Total

This is a study using previously-collected registry data and EHR data to quantify the accuracy with which registry information could be populated or verified using EHR data from past visits, formatted using different common data models (e.g., OMOP, PCORNet, i2B2) to improve data quality and efficiency.

Role: Principal Investigator (20% effort)

6. Astra Zeneca, Inc.

Acute Coronary Syndrome (ACS) Advocate

2018-2021

\$480,026 Total

This was a prospective study to test a new interventional program, ACS Advocate, for patients admitted to Geisinger Medical Center with acute coronary syndrome.

Role: Principal Investigator (20% effort)

7. Geisinger Quality Options

Clinic-Based Medication Disposal

2019-2020

\$107,243 Total

This is a prospective study to test the impact of patient education and distribution of a physical disposal aid to improve rates of safe and proper disposal of leftover opioid medications for acute pain patients.

Role: Co-Investigator (PI: Eric Wright, PhD) (8% effort)

8. Geisinger Quality Options

Cerebral Palsy and Neuromuscular Disorder Clinic

2019-2020

\$536,580 + 0% Indirects = \$536,580 Total

This is a prospective study to implement best practices in a new care model to improve caregiver experience and reduce low-value, unplanned utilization and high cost surgical procedures.

Role: Co-Investigator (PI: Mark Seeley, MD) (5% effort)

9. Purdue Pharma, LLP

Effect of Wearable Health Technology on the Treatment of Patients With Chronic Pain at Geisinger Health System

7/1/2016-12/31/2019

\$635,844 + 64% Indirects = \$1,042,643 Total

This is a prospective study to compare pain, function and psychosocial outcomes among patients in a multidisciplinary pain treatment program with and without the addition of a wearable health technology (AppleWatch and pain app) component.

Role: Co-Principal Investigator (with John Han, MD) (15% effort)

10. Genentech

Love Your Eyes

12/22/2017-3/21/2020

\$77,727 + 65% Indirects = \$128,250 Total

This is a prospective study to test whether a combination of educational materials in the clinic and increased access to screening equipment will increase the percentage of diabetic patients who receive their recommended screenings for diabetic retinopathy.

Role: Co-Investigator (PI: Keith Boell, MD, Geisinger Health Plan) (5% effort)

11. Patient Centered Outcomes Research Institute (PCORI)

Assessing the Value of Including Unique Device Identifiers (UDI) in Claims

11/1/2016-10/31/2019

\$105,680 + 40% Indirects = \$147,951 Total (to Geisinger, 3 year contract)

This is a demonstration project with the goal of integrating device-specific information on cardiac pacemaker devices into billing and claims information systems to improve device tracking by health insurers.

Role: Site Principal Investigator (5% effort)

12. Food and Drug Administration (FDA), Medtronic, Inc., and Johnson & Johnson (public-private partnership)

1U01FD005476-01 Building UDI Into Longitudinal Data for Surveillance and Research

1/1/2016-2/28/2019

\$141,143 + 65% Indirects = \$232,887 Total

This is a demonstration project with the goal of integrating device-specific information on coronary stents into the inventory and catheterization lab information systems to improve device tracking, and to build a distributed research network to examine device performance over time.

Role: Site Principal Investigator

13. National Association of Chain Drug Stores (NACDS) Foundation

Effect of Community Pharmacist Consultative Services and Virtual Connectivity Through the Use of a Health Information Exchange on Readmissions and Medication Adherence Among a High-Risk Patient Population

5/2/2014-3/1/2018

\$521,739 + 15% Indirects = \$600,000 Total

This is a quasi-experimental trial of pharmacist-provided medication discharge support to a group of high-risk patients following hospital discharge. The aim of our study is to determine the impact of Inpatient-to-Outpatient Pharmacist (IOP) collaboration and pharmacist-provided continuous care follow-up on readmissions among a group of high-risk patients.

Role: Co-Investigator (PI: Eric Wright, PharmD) (10% effort)

14. Geisinger Quality Options

Optimizing High-Cost Biologic Treatments for Patients with Multiple Sclerosis

2016-2017

\$397,286 + 0% Indirects = \$397,286 Total

This is a prospective study to create management bundles for multiple sclerosis and test measure the patient-level and cost-effectiveness outcomes of this approach.
Role: Co-Investigator (PI: Michael Evans, RPh, Pharmacy) (5% effort)

15. Pennsylvania Department of Health (DOH)

Evaluation of System-Wide Medication Prior Authorization Process
1/1/2016-6/30/2019

\$153,947 + 20% Indirects = \$184,737 Total

This is a prospective study to identify gaps in the current medication prior authorization process and test a new interventional pathway to improve efficiency.

Role: Co-Investigator (PI: Michael Evans, RPh, Pharmacy) (10% effort)

16. Abbvie, Inc.

Real-World Outcomes, Medication Adherence and Cost Among Patients With Multiple Sclerosis Using Disease Modifying Therapies
5/12/2017-12/31/2017

\$149,436 + 65% Indirects = \$246,569 Total

This is a retrospective study to test for relationships between adherence and high-cost medical utilization in patients taking disease-modifying therapies for multiple sclerosis (MS).

Role: Co-Investigator (PI: Dante Grassi, PharmD, Pharmacy) (5% effort)

17. Progenity, Inc.

Clinical and Economic Outcomes of Mothers with Preeclampsia
1/1/2017-12/31/2019

\$258,251 Total (indirect data not available)

This is a retrospective study to identify clinical and economic consequences of preeclampsia in mothers giving birth.

Role: Co-Investigator (PI: Susan Snyder, PhD) (5% effort)

18. Sanofi-Regeneron, Inc.

Assessing the Relationship between Eosinophil Results and Asthma Control
10/1/2016-10/31/2017

\$130,680 + 25% Indirects = \$163,350 Total

This is a retrospective study to examine whether there is a predictive relationship between baseline blood eosinophil levels in moderate-to-severe asthma patients and future asthma-related burden.

Role: Principal Investigator (15% effort)

19. Intarcia Therapeutics, Inc.

Healthcare Burden Among Patients with Uncontrolled Type 2 Diabetes Mellitus
12/22/2014-6/30/2017

\$120,606 + 65% Indirects = \$199,000 Total

This was a retrospective study to describe the general characteristics, utilization patterns, and the relationship between medication adherence and glycemic control, in a population of patients with Type II diabetes taking oral antidiabetic agents.

Role: Co-Investigator (PI: Eric Wright, PharmD)

20. Glaxo-Smith-Kline, Inc.

Impact of Pharmacist-Led Management of Diabetes on Patient Outcomes and Cost of Care
1/1/2011-12/31/2015

\$144,562 (indirect data not available)

This was a study to test whether Geisinger's pharmacist-led medication therapy management program results in improved clinical and financial outcomes.

Role: Co-Investigator (PI: Daniel Maeng, PhD)

21. Intarcia Therapeutics, Inc.

Qualitative Analysis of Living with Diabetes Among Patients With Varying Degrees of Medication Adherence

1/1/2015-12/31/2016

\$61,146 + 62% Indirects = \$98,940 Total

This was a prospective study to enroll patients in an online community and participate in focus groups to discuss their experience with medication adherence and glycemic control.

Role: Co-Investigator (PI: Eric Wright, PharmD)

22. Abbott Nutrition, Inc.

Oral Nutrition Supplements in the Community Setting: Patient Characteristics and Outcomes

6/29/2015-6/28/2016

\$27,924 + 57% Indirects = \$43,799 Total

This was a retrospective study using EHR and claims to characterize the population of patients using Oral Nutrition Supplements (ONS) and to perform a propensity-matched comparative analysis of health utilization and outcomes between ONS users and a group of control patients.

Role: Principal Investigator

23. Sanofi-Regeneron, Inc.

Clinical and Economic Consequences of Statin Intolerance

12/3/2014-12/2/2015

\$89,870 + 65% Indirects = \$148,286 Total

This was a retrospective study using propensity score matching of cases and controls to compare the clinical characteristics and major cardiovascular outcomes between patients with statin intolerance and patients who are able to take statin medications.

Role: Principal Investigator

24. AbbVie, Inc.

Morbidity, Mortality and Economic Burden Associated With Post-Surgical Acute Kidney Injury (PS-AKI)

9/1/2013-8/31/2014

\$102,975 + 73% Indirects = \$178,000 Total

This was a descriptive study to investigate risk factors for post-surgical acute kidney injury, and compare outcomes including mortality, renal replacement therapy and total medical costs between patients with and without kidney injury.

Role: Principal Investigator

25. Bucknell-Geisinger Research Institute

2013 Seed Grant Program

Non-Environmental Health Impacts of Marcellus Shale Development

6/1/2013-3/31/2015

\$2,900 + 0% Indirects = \$2,900 Total (to Geisinger)

This was a retrospective, methodological study to identify suitable control populations within Pennsylvania for studies of the impact of natural gas development on traffic accidents, alcoholism and depressive disorders.

Role: Site Principal Investigator

26. Biogen Idec, Inc.

Multiple Sclerosis (MS) Outcomes in Geisinger Clinic

2/4/2011-6/30/2016

\$241,818 + 65% Indirects = \$399,000 Total

This was a retrospective and prospective study to investigate the relationship between medication adherence and outcomes in multiple sclerosis (MS) patients.

Role: Co-Investigator (PI: Gregory Moore, MD, PhD)

27. Union Chimique Belge, S.A.

Early Detection of Rheumatoid Arthritis (RA) and Predicting Treatment Response, Progressive Erosions, Risk of Acute Exacerbations, and Functional Disability

11/3/2011-10/31/2013

\$236,638 + 54% Indirects = \$363,500 Total

This was a study to test the predictive ability of biomarkers in rheumatoid arthritis patients for predicting long-term outcomes of treatment.

Role: Principal Investigator

28. The Commonwealth Fund

Grant #20110214 What Makes Medical Homes Work: Lessons for Implementation and Spread

5/1/2011-3/31/2013

\$154,576 + 10% Indirects = \$170,033 Total

This was a mixed methods study to investigate variation in patient-level outcomes over time and among clinics participating in a Patient-Centered Medical Home, and to examine differences in implementation and model components among sites that explain this variation.

Role: Principal Investigator

29. Bon Secours Health System/Hospital Sisters Health System

Clinical Excellence Collaborative Project

11/1/2010-10/31/2011

\$79,875 + 65% Indirects = \$131,793 Total

This was a project to guide two external health systems in the implementation of various process improvement strategies and analyze the outcomes of these implementation efforts.

Role: Co-Investigator

30. Agency for Healthcare Research and Quality (AHRQ)

1R01HS019912-01 Scalable Partnering Network (SPAN) for Comparative Effectiveness Research

9/1/2010-9/29/2013

\$166,842 + 63% Indirects = \$271,629 Total

This was a retrospective, methodological study to develop improved methods for quality assurance and comparative effectiveness research across multiple health systems.

Role: Site Principal Investigator

31. Teva Neuroscience

Multiple Sclerosis (MS) Outcomes in Geisinger Clinic

9/1/2010-12/31/2011

\$137,654 + 51% Indirects = \$207,675 Total

This was a retrospective study to describe the Geisinger population of patients with multiple sclerosis (MS) in terms of demographics, diagnoses, healthcare utilization and outcomes.

Role: Principal Investigator

32. Orthopaedic Trauma Association

2009 Clinical Research Award Competition

Decreasing Long Term Complications and Cost Following Hip Fracture using a Medical Home Concept

1/1/2010-12/31/2013

\$97,785 + 0% Indirects = \$97,785 Total

This was a prospective, non-randomized controlled study to compare rates of hospital readmissions, healthcare costs, and serious adverse events between hip fracture patients whose post-discharge chronic care is managed using a patient-centered medical home model versus standard care.

Role: Principal Investigator

33. NYU-Langone Medical Center and Geisinger Health System, 2010 Seed Grant Program

Expanding Comparative Effectiveness Research in Orthopedics by Capturing Uniform Measures of Patient-Reported Functional Outcomes at Two Institutions

1/1/2010-12/31/2010

\$28,654 + 0% Indirects = \$28,654 Total (to Geisinger)

This was a prospective study to design and implement an electronic infrastructure for collecting functional outcome data from patients with osteoarthritis of the knee using a uniform set of questionnaires and touchscreen computers at Geisinger and NYU.

Role: Site Principal Investigator

34. Agency for Healthcare Research and Quality

HHS #290200500411, Task Order No. 2, Comparative Effectiveness of Common 1st and 2nd Line Antihypertensive Therapies In Moderating Hypertension-related Changes in Renal Function
2009-2011 \$24,403 (indirects data not available)

This was an observational study using electronic health record (EHR) data to analyze creatinine and glomerular filtration rate (GFR) outcomes from different antihypertensive medications used as first-line single-drug therapy.

Role: Co-Investigator (PI: Robert Langer, MD, MPH)

35. Daiichi-Sankyo, Inc.

Medication Adherence and Outcomes in Hypertension

2010-11 \$225,000

This was a retrospective study to develop and assess three performance metrics for medication adherence using electronic health record (EHR) and insurance claims data, and to test the usability of these metrics and their relationship to hypertension (blood pressure) outcomes.

Role: Co-Investigator

36. Agency for Healthcare Research and Quality

AHRQ DeCide Task Order, HHS # 290200500411, Task Order No. 1

Optimal Second-Line Therapy for Hypertension

2006-2008 \$399,874

This was an observational study using electronic health record (EHR) data to analyze blood pressure and adverse event outcomes from antihypertensive medications used as first-line and second-line therapies.

Role: Co-Investigator

37. Geisinger Health Plan

Impact of a Medical Home Intervention on Health Care Spending, Utilization, and Quality

2006-2007 \$10,164

This was a pre-post observational study with a concurrent control cohort using administrative claims data to compare rates of hospital admissions, readmissions, and healthcare cost data between patients whose chronic care was managed using a patient-centered medical home model versus standard care.

Role: Principal Investigator

38. Pfizer, Inc.

Medication Compliance for Hypertension and Hyperlipidemia

2006-2007 \$75,000

This was an observational study using electronic health record (EHR) data to analyze blood pressure and adverse event outcomes from antihypertensive medications used as first-line and second-line therapies.

Role: Co-Investigator

39. FDA Office of Women's Health

Development of Guidelines for Evaluating the Appropriateness of Vertebroplasty Surgery for Patients with Osteoporosis

2004-2006 \$57,000

This was an ex vivo study to investigate effectiveness of percutaneous vertebroplasty in restoring mechanical integrity of the spinal column following an osteoporotic compression fracture.

Role: Principal Investigator

VI. PROFESSIONAL SERVICE

- **Journal Reviewer:**

- *Accident Analysis & Prevention*

- *American Journal of Managed Care*
- *Journal of Biomechanics*
- *Journal of Orthopaedic Surgery and Research*
- *Journal of Pharmacy Practice*
- *Journal of Testing and Evaluation*
- *Medical Engineering & Physics*
- *Pediatrics*
- *Preventing Chronic Disease*
- *The Spine Journal*
- **Grant reviewer:**
 - NIH Challenge Grants (2009)
 - NIH Small Business Innovation Research-Orthopedics (2006)
- **Memberships:**
 - Academy Health
 - Accredited Standards Committee (ASC) X12 (development of standards for electronic data interchange).
 - American Society for Testing of Materials (ASTM) International
 - American Society of Mechanical Engineers (ASME)
 - Association for Healthcare Resource and Material Management's High Risk Implant Workgroup
 - Tau Beta Pi
 - Sigma Xi
 - State of Delaware Association of Professional Engineers
- **Leadership:**
 - Chair, ASTM subcommittee F04.25 on Spinal Devices (2005-present)
 - Chair, Healthcare Transformation Group (HTG)'s Research & Development Committee
 - ASME chapter president (1995-96)
 - Tau Beta Pi chapter president (1995-96)
 - Berkeley Bioengineering Association of Students president (2000-2001)
- **Other Service:**
 - Geisinger Institutional Review Board (IRB) (2010-13);

VII. OTHER RELEVANT SKILLS

- Statistical programming: SAS, R, R Studio, JMP
- Database programming: SQL, SAS/SQL, Microsoft Access, FileMaker Pro
- Other software: Microsoft Excel, Powerpoint, Word, Publisher, Refworks, HTML

VIII. MENTORING EXPERIENCE

a. Nursing Research

1. Elisabeth Culver, **Nursing**, "Coping With Labor Protocol," 2018.
2. Ronna Aucker, **Nursing**: "Supplemental lactation system," 2013-14. Completed protocol, IRB application, study in progress.
3. Debra Wantz, **Nursing**: "Selection of preceptors for adult intensive care," 2014. Completed protocol.
4. Alexandra Brock, **Nursing**: "Pilot study strengthening point-of-care shared governance: understanding staff's perception," 2013. Completed protocol, IRB application, analysis.

b. Resident and Fellow Research

5. Bri Budzak, **Pharmacy**, "Hypoglycemic Events in Intensive Care Unit Patients: Comparing Insulin Regimens", 2022
6. Nicole Hughes, **Pharmacy**, "Primary Care Pharmacist Impact on Vaccination Rates in the Ambulatory Care Setting", 2022

7. Alison Walck, **Pharmacy**, "Impact on A1c in Patients Using the Freestyle Libre or Dexcom CGM vs Traditional Fingerstick Monitoring in Diabetic Patients > 65 YOA and Effect of CGM on A1C in patients with Type 2 DM", 2022
8. Samantha Matchock, **Pharmacy**, "Comparison of Effectiveness and Safety Outcomes in Patients with Dose Escalation of Empagliflozin in Practice", 2022
9. MeiLing Montross, **Pharmacy**, "Impact of a Pharmacy Transition of Care Program and Impact of a Pharmacist-Led Transitions of Care Medication Reconciliation Program", 2022
10. Scott Alexander, **Pharmacy**, "Incidence of VTE in Patients with Prior COVID-19 Infection in the Outpatient Setting", 2022
11. Trisha Patel, **Pharmacy**, "Benefit (Expected A1C reduction) of MTDM Intervention on Patients Recently Discharged with DKA", 2022
12. Mustafa Hussain, **Pharmacy**, "Adverse Event Reporting Rates Using an Electronic Health Record-Based Documentation System," , 2022
13. Katelin Ivey, **Pharmacy**, "Incidence of Febrile Neutropenia in Cyclin-Dependent Kinase Inhibitors", 2022
14. Rachel Seidel, **Pharmacy**, "Timing of DVT Prophylaxis After Traumatic Intracranial Hemorrhage", 2022
15. Sarah Jallen, **Pharmacy**, "Evaluation of Hemodynamic Changes in Trauma Patients Undergoing Rapid Sequence Intubation (RSI) in the Emergency Department", 2022
16. Haley Van Ness, **Pharmacy**, "Evaluation of Systemic and Catheter Directed Thrombolysis for Acute Pulmonary Embolism", 2022
17. Michael Hardler, **Pharmacy**, "Evaluation of the Adjuvanted Recombinant Herpes Zoster Vaccine (Shingrix) and Stem Cell Transplant (Auto & Allo)", 2022
18. Gwen Hua, **Pharmacy**, "Comparison of the Incidence of PJP Infection With or Without PJP Prophylaxis in Neuro-oncology Patients Receiving Temozolomide", 2022
19. Alysa Adams, **Pharmacy**, "The Impact of Bedside Medication Delivery Before Emergency Department Discharge on Antibiotic Compliance", 2022
20. Sydney Estock, **Pharmacy**, "Predictors of Rate Control Failure in Critically Ill Patients with Atrial Fibrillation and Rapid Ventricular Rate", 2022
21. Megan Neville, **Pharmacy**, "Evaluation of Hemodynamics in Obese and Non-Obese Critically Ill Patients Receiving Propofol or Dexmedetomidine", 2022
22. Kara Cooper, **Pharmacy**, "Evaluation of the Impact of Telephonic Pharmacist Managed Uncomplicated UTIs", 2021
23. Rachel Lazevnick, **Pharmacy**, "Effectiveness of Decreasing Morphine Milligram Equivalents Throughout the Geisinger Health System Since December 2016", 2021
24. Jaehee Cho, **Pharmacy**, "Impact of High vs. Low Dose Midodrine", 2021
25. Hannah Chun, **Pharmacy**, "Safety and Efficacy of NSAIDs and DVT Prophylaxis in Trauma Patients", 2021
26. Allison Hamner, **Pharmacy**, "Qualitative Descriptive Study of Cancer Patients' Experience With a Pharmacist Managed Oral Chemotherapy Clinic", 2021
27. Melanie Hawn, **Pharmacy**, "Management of Perioperative Pain in Patients Receiving Buprenorphine", 2021
28. Tram Le, **Pharmacy**, "Incidence of Stroke in Critically Ill Patients Receiving Amiodarone for New Onset Atrial Fibrillation", 2021
29. Elena Denger, **Pharmacy**, "Low Dose Entresto vs. Target Dose ACEI/ARB in Patients with HFrEF", 2021
30. Lauren Pheasant, **Pharmacy**, "Evaluating the Impact of Ambulatory Pharmacist Driven Enrollment in Mail Order Services for Geisinger Health Plan (GHP) Patients", 2021
31. David Moll, **Pharmacy**, "Weight Based Insulin Dosing in the Emergency Department for Acute Hyperkalemia in Patients with Renal Dysfunction", 2021
32. Preston Setzer, **Pharmacy**, "Incidence of Acute VTE in Cirrhosis Patients in the Setting of Vitamin K Administration", 2021
33. Nicholas Preston, **Pharmacy**, "Hypotension Among Vasopressor Discontinuation in Adult Patients with Septic Shock in the ICU", 2021
34. Stephanie Cybulski, **Pharmacy**, "Efficacy and Safety of Apixaban vs. Warfarin for Atrial Fibrillation in Obese Patients With Renal Dysfunction", 2021

35. Lindsay Okubo, **Pharmacy**, "Smaller But More Frequent Dosing of Cefepime in the Treatment of Febrile Neutropenia", 2021
36. Elyssa Johannesen, **Pharmacy**, "Timing of Folic Acid and B12 Supplementation in Pemetrexed Use", 2021
37. Miranda Graham, **Pharmacy**, "Medication Reconciliation in the Critical Care Unit: Assessing Medication Reconciliation After Documented as Completed in the EHR by Non-Pharmacy Employees", 2021
38. Matthew Fanelli, **Orthopedics**, "Pediatric Lateral Condyle," 2020.
39. Hui Zhang, **Podiatry**, "Peer Review Bias in Foot and Ankle," 2020.
40. Benjamin Wagner, **Orthopedics**, "MRSA Hand Infection," 2020.
41. Cassandra Ricketts, **Orthopedics**, "Ultraviolet Light Disinfection," 2020.
42. Stephanie Ko, **Podiatry**, "Foot and Ankle Injury," 2020.
43. Max Gehrman, **Orthopedics**, "Surgeon predictions of patient coping skills," 2019.
44. Kayla Hart, **Pharmacy**, "Evaluation of anti-Xa directed enoxaparin therapeutic drug monitoring in patients with cancer," 2019-20.
45. Anna Baughman, **Pharmacy**, "Cancer and venous thromboembolic events," 2019.
46. Blake Lowe, **Pediatrics**, "Utilization in High Complexity Transition Patients," 2019.
47. Daniela Rocha, **Orthopedics**, "Hematoma and bier blocks," 2019.
48. Ruchit Shah, **Gastrointestinal Medicine**, "Osteopathic Manipulative Medicine," 2019.
49. Daniela Rocha, **Orthopedics**, "Distal radius fractures," 2019.
50. Tracy Tomjack, **Sports Medicine**, "Nutritional habits of physicians," 2018.
51. Matthew Fanelli, **Orthopedics**, "Pediatric lateral condyle fracture," 2018.
52. Baylee Carroll, **Nutrition**, "Diabetes and nutrition," 2018.
53. Yilma Kebelo, **Podiatry**, "Coalition Resection," 2018.
54. Shawn Potteiger, **Sports Medicine**, "College athletes and depression," 2018.
55. Amanda Ward, **Internal Medicine/Pediatrics**, "pSOFA Scoring," 2018.
56. Daniel Sylvestre, **Orthopedics**, "Low-Profile Velocity Brace for Scoliosis-Related Pain," 2018.
57. Samvel Keshishyan, **Podiatry**, "New Fixation for Calcaneal Fractures," 2018.
58. Debdoot Saha, **Critical Care Medicine**, "Noise Reduction in the ICU," 2018.
59. Leigh Patterson, **Psychology**, "Predictors of Attendance in Mental Health Treatment," 2018.
60. Jason Pan, **Sports Medicine**, "Exercise as Medicine," 2018.
61. Aram Shahinyan, **Anesthesia**, "Postoperative Delirium," 2017.
62. Vipul Sharma, **Sports Medicine**, "Diet and Patient Counseling," 2017.
63. Zainabbas Hassam, **Oral and Maxillofacial Surgery**, "Pharmacological Management of TMJ Myofascial Pain," 2017.
64. Stephanie Ko, **Podiatry**, "Non-Trauma Related Metatarsal Pain," 2017.
65. Matthew Wolcott, **Med-Peds**, "Inflammatory Bowel Disease and Hepatitis B," 2017.
66. Jarrod Buzalewski, **General Surgery**, "Margin Disparity in Colorectal Cancer," 2017.
67. Kimberly Youkhana, **Med-Peds**, "Hemochromatosis," 2017.
68. Kimberly Youkhana, **Med-Peds**, "Eosinophilic Carcinoma," 2017.
69. Tejal Raichura, **Neurosurgery**, "QOL for Home Monitoring," 2017.
70. Amrut Borade, **Orthopedics**, "Staged vs. ETC Protocol," 2017.
71. Daniela Sanchez Morales, **Orthopedics**, "INR and Hemiarthroplasty," 2017.
72. Neha Sinha, **Orthopedics**, "Oxycodone & Telemedicine," 2017.
73. Harish Kempegowda, **Orthopedics**, "Head CT and Trauma," 2017.
74. Harish Kempegowda, **Orthopedics**, "Obesity-Intertrochanteric Fracture," 2017.
75. Neha Sinha, **Orthopedics**, "Pediatric Forearm," 2017.
76. Steven Goldberg, **Orthopedics**, "Botox Injections for Raynaud's Vasospasm," 2017.
77. Kristen Sumner, **Orthopedics**, "Distal Radial Fractures," 2017.
78. Ryan Channick, **Sports Medicine**, "Diagnostic Ultrasound," 2017.
79. Tiffany Tsay, **Sports Medicine**, "Clean No Touch Technique," 2017.
80. Christopher Moore, **Respiratory Therapy**, "Pediatric Oxygenation," 2017.
81. Eddie Brown, **Internal Medicine**, "PCSK9 inhibitors and STEMI events," 2016. Assistance with study design and protocol.
82. Surya Cooper, **Obstetrics-Gynecology**, "Implantable birth control," 2016. Assistance with study design, protocol, manuscript.

83. Harish Kempegowda, **Orthopedics**, "Intertrochanteric fractures and obesity," 2016. Assistance with study design and protocol.
84. Akhil Tawari, **Orthopedics**, "Orthopedics versus vascular surgery prioritization," 2016. Assistance with study design and protocol.
85. Harish Kempegowda, **Orthopedics**, "Sled vs. screw ankle fractures," 2016. Assistance with study design, protocol.
86. Amrute Borade, **Orthopedics**, "Tibial plateau fractures and subsidence," 2016. Assistance with study design, protocol.
87. Kelsey Siebold and Eric Kowalek, **Pharmacy**, "Duration of anticoagulation after provoked VTE," 2016. Assisted with study design, protocol, prep to research request and Clinic Research Fund grant application.
88. Jordan Moore, **Pharmacy**, "Efficacy and safety analysis of P2Y12 antagonists in patients with acute coronary syndrome," 2016. Assistance with study design, protocol, IRB application.
89. Katie Karkowski, **Pharmacy**, "Risk factors for development of new onset congestive heart failure with gemcitabine," 2016. Assistance with study design, protocol, IRB application, Clinic Research Fund grant application.
90. Tristan Maiers, **Pharmacy**, "Evaluation of vancomycin-induced renal toxicity in hematology and oncology patients," 2016. Assistance with study design, protocol help, IRB application.
91. Justin Tunis, **Sports Medicine**, "Injury incidence vs. rest in professional hockey," 2016. Assistance with study design, protocol.
92. Roxanna Larsen and Jason Jarinko, **Sports Medicine**, "Measurement of balance to assess return-to-play," 2016. Assistance with study design and protocol.
93. Melissa McGann, **Obstetrics**, "Group B strep and preterm premature rupture of membranes," 2015. Completed study design, protocol, IRB submission.
94. Kara Yakish, **Dermatology**, "Management recommendations after evaluating histologic margins of skin pathology specimens," 2014. Advised on study protocol, IRB pathway.
95. Jonathan Lucas, **Pharmacy**, "Use of oral anticoagulants during direct cardioversion in atrial fibrillation patients," 2014. Advised and re-designed study protocol.
96. Courtney Davis, **Dentistry**, "Student debt in dental school and job placement," 2014. Advised on questionnaire development.
97. Miriam Rodriguez, **Psychiatry**, "Memory training intervention to improve mild cognitive impairment," 2014. Completed protocol.
98. Sarah Brinley, **Pharmacy**, "Assessment of BCR-ABL1 transcript testing in patients with chronic myelogenous leukemia: the ABATT study," 2014. Completed protocol, IRB application.
99. Sean Smithgall, **Pharmacy**, "Impact of the MTM pain pharmacist on pain management," 2014. Completed protocol, CRF funding application, IRB application, study in progress.
100. Amy Speeckaert, **Orthopedics**: "Risk factor for reoperation after trigger finger digit injection," 2014. Completed project, accepted for podium presentation at national meeting.
101. David Ross, **Orthopedics**: "Euflexxa vs. Synvisc for knee osteoarthritis," 2014. Completed protocol, IRB application.
102. Chelsea Fitzgerald, **Pharmacy**: "Improved transitions of care with a pharmacist-managed anticoagulation discharge program," 2013. Completed protocol, IRB application, manuscript.
103. Emily Frederick, **Pharmacy**: "Effect of changing home antihyperglycemic medications upon hospital admission," 2013. Completed protocol, IRB application, manuscript prepared.
104. Jessica Nelson, **Pharmacy**: "Cardiac enzymes in muscular dystrophy," 2013. Completed protocol, IRB application.
105. Sarah Brinley, **Pharmacy**: "Cisplatin and mannitol for hydration in cancer patients," 2013. Completed protocol, IRB application.
106. Sarah Pupo, **Pharmacy**: "Overrides of high-alert medications from emergency department automated dispensing cabinets," 2013. Completed protocol, IRB application, analysis, manuscript prepared.
107. Jyotu Sandhu, **Orthopedics**: "Formal vs. home physical therapy," 2013. Completed protocol, IRB application.
108. Brian Deegan, **Orthopedics**: "Chronic kidney disease and total joint replacement," 2013. Completed analysis, abstract, manuscript published in *Orthopedics*.
109. Amy Speeckaert, **Orthopedics**: "Bone cement vapor exposure during surgery," 2013.

- Completed protocol, analysis, IRB exemption, manuscript submitted to JBJS.
110. Nate Cafferky, **Orthopedics**: "Obesity threshold in total joint replacement," 2013. Completed protocol, IRB application.
 111. Natalie Stinton, **Dentistry**: "Efficacy of the caries risk assessment tool," 2012. Completed protocol, IRB application.
 112. Jesna Mathew, **General Surgery**: "Adherence to BCLC guidelines in liver cancer patients," 2012. Completed protocol, IRB application.
 113. Travis Webb, **General Surgery**: "Outcomes following presentation for acute cholecystitis," 2012. Completed protocol, IRB application.
 114. John Ross, **Maternal Fetal Medicine**: "Umbilical artery Doppler study," 2012. Completed protocol, IRB application.
 115. Adam Lee, **Orthopedics**: "EPL rupture in pediatric patients," 2012. Completed analysis, abstract submitted to AAOS.
 116. Amy Speeckaert, **Orthopedics**: "Genetic risk factors for pulmonary embolism after total joint replacement," 2012. Completed protocol.
 117. Oluwatoyosi Dada, **Pediatrics**: "Strep throat," 2012. Completed protocol.
 118. Mazen Roumia, **Cariology**: "An examination of the bleeding risk associated with the concomitant use of statins and warfarin," 2015. Completed statistical plan, analysis, conference submission.
 119. Elie Ghanem, **Orthopedics**: "Postoperative complications for hemiarthroplasty patients with and without Plavix," 2014. Completed protocol, IRB application, analysis, and poster accepted for presentation at national conference.
 120. Adam Lee, **Orthopedics**: "Comparison of 2D and 3D images for diagnosing acetabular fractures," 2014. Completed protocol.
 121. Nithya Menon, **Pulmonary Medicine**: "Adherence and outcomes of implementing the ProvenCare model in patients admitted for COPD acute exacerbations," 2014. Completed analysis, abstract submitted to national meeting.
 122. Christian Basque, **Sports Medicine**: "Tendinopathy as a side effect of fluoroquinolone treatment," 2014. Designed questionnaire, completed protocol.
 123. Patricia Bornhorst, **Sports Medicine**: "On-field removal of equipment after cervical spine injuries," 2014. Designed questionnaire.
 124. John Ross, **Maternal Fetal Medicine**: "The effect of CV4 on uncomplicated pregnancies at term," 2014. Developed protocol, study design.
 125. David Kaland, **Pharmacy**: "Analgesic treatment of oral mucositis involving ketamine," 2014. Completed protocol, IRB application.
 126. Hemil Maniar, **Orthopedics**: "Sonication of removed hardware," 2014. Completed analysis, abstract submitted to OTA.
 127. Kristin McPhillips, **Orthopedics**: "Anticoagulation INR before total hip replacement," 2014. Completed protocol, IRB application, analysis, abstract submitted to OTA.
 128. Kristin McPhillips, **Orthopedics**: "Compliance with sequential compression devices," 2014. Completed analysis, abstract submitted to OTA.
 129. Kristin McPhillips, **Orthopedics**: "Reoperation rate on varus knees," 2014. Completed protocol, IRB application.
 130. Chris Grandizio, **Orthopedics**: "Level of evidence used in trauma residency training exams," 2014. Completed analysis, abstract submitted to OTA.
 131. Meike Schuster, **Maternal Fetal Medicine**: "Impact of body mass index on pregnancy complications," 2013. Completed protocol, IRB application.
 132. Chris Grandizio, **Orthopedics**: "Trauma-related hospital costs in the Amish and Mennonite populations," 2013. Completed analysis, manuscript prepared.
 133. Chris Grandizio, **Orthopedics**: "Trigger finger after carpal tunnel release," 2013. Completed analysis, manuscript published in *J Hand Surgery*.
 134. Raveesh Richard, **Orthopedics**: "Epidemiology of clavicle fractures," 2013. Completed analysis, abstract submitted to OTA.
 135. Raveesh Richard, **Orthopedics**: "Learning styles in orthopedic training programs," 2013. Completed analysis.
 136. Raveesh Richard, **Orthopedics**: "Trimed Sled," 2013. Completed analysis.
 137. Zhiyong Hou, **Orthopedics**: "Acromioclavicular joint disruption," 2013. Completed protocol, IRB

application, analysis, manuscript submitted to *Orthopedics*.

138. Joe Mlinarich, **Respiratory Care**: "Breath actuated nebulizers," 2013. Completed protocol.
139. Kamell Eckroth-Bernard, **Vascular Surgery**: "SAAAVE Act and abdominal aortic aneurysms," 2013. Completed analysis, manuscript published in *J Vascular Surgery*.
140. Gregory Yost, **Cardiology**: "Readmission after PCI," 2012. Completed analysis, manuscript published in *JACC: Interventions*.
141. Nevin Baker, **Cardiology**, "Radial Catheterization," 2012. Completed protocol, IRB application.

d. Attending Physician Research

142. Mark Seeley, **Orthopedics**, "POSNA Core Stability," 2019.
143. Eric Hossler, **Dermatology**, "Fellowship Interviewing Prediction," 2019.
144. Michael Suk, **Orthopedics**, "Acute/Chronic Pain and Applied VR Therapy," 2019.
145. Mark Seeley, **Pediatric Orthopedics**, "Mechanical resistance-based gaming devices and pediatric fracture," 2019.
146. Chris Grandizio, **Orthopedics**, "WALANT Procedures," 2019.
147. Christopher Damsgaard, **Orthopedics**, "Computer positioning for total hip surgery," 2018.
148. Chris Grandizio, **Orthopedics**, "Patient coping skills and outcomes," 2018.
149. Daniel Horwitz, **Orthopedics**, "Development of a predictive algorithm for opioid abuse among rural, orthopaedic trauma patients," 2018.
150. Catherine O'Neill, **Sports Medicine**, "Polycystic ovarian syndrome and athletic injury," 2019.
151. Thomas Davis, **Pediatrics**, "Evaluation of the validity of the pediatric sequential organ failure assessment score in critically ill children," 2018.
152. Hu, Ying, **Endocrinology**, "Clinical outcome of papillary thyroid microcarcinoma in Geisinger," 2018.
153. Chulhyun Ahn, **Rehab Medicine**, "Exoskeleton for upper extremity injury," 2018.
154. Anne Marie Morse, **Pediatric Neurology**, "Perceptions of clinician research," 2018.
155. James Klena, **Cardiothoracic Surgery**, "Pericardial effusion drainage," 2018.
156. Sanjay Doddamani, **Cardiology**, "scFurosemide Real-World Evaluation for Decreasing Hospital Admissions," 2018.
157. Steven Lietman, **Orthopedics**, "Avascular Necrosis Development and Hypertriglyceridemia," 2018.
158. Uche Ofoma, **Critical Care**, "Sepsis AHRQ R18," 2017.
159. Li Zhang, **Anesthesia**, "Genetic risk factors for perioperative pain management," 2017.
160. Sanjay Doddamani, **Emergency Medicine**, "Mobile Health Paramedic Initiative," 2017.
161. Donna Wolk, **Laboratory Medicine**, "Centralized Influenza Testing," 2017.
162. Amir Kershenovich, **Neurosurgery**, "Study Designs," 2017.
163. Daniel Horwitz, **Orthopedics**, "Breg Device," 2017.
164. Timothy Lindemann, **Otolaryngology**, "Zileuton for Nasal Polyps," 2017.
165. Benjamin Kuhn, **Pediatric Otolaryngology**, "SRC Grant - Eosinophilic Esophagitis," 2017.
166. Debabra Bandyopadhyay, **Pulmonary Medicine**, "SRC Grant - RV Dysfunction," 2017.
167. Paul Simonelli, **Pulmonary Medicine**, "BI COPD Propellor," 2017.
168. David Diehl and Alexander Kim, **Gastroenterology**, "Osteopathic manipulation for gastrointestinal problems," 2016. Assistance with questionnaire design, validation study design.
169. Keith Boell, **Internal Medicine**, "Diabetic eye screening," 2016. Assistance with study design, outcomes measurement instruments.
170. John Han, **Interventional Pain**, "Pain medication monitoring," 2016. Assistance with study design, protocol, prep to research request, definition of cohort.
171. Edward Everett and Bryan Snook, **Neonatal Intensive Care Unit**, "Calcium phosphate study," 2016. Assistance with study design and protocol.
172. Adam Lee, **Orthopedics**, "CT diagnosis of acetabular fractures," 2016. Assistance with study design, protocol, internal SRC grant application.
173. Michael Evans, **Pharmacy**, "Brief Risk Questionnaire," 2016. Assistance with survey validation study design.
174. Eric Hossler, **Dermatology**, "Efficacy of curettage alone for cutaneous squamous cell carcinoma," 2015. Completed protocol, IRB application.
175. Beni Verma, **Internal Medicine**, "Correlation of pulse pressure and mean arterial pressure to 30

- days readmission in patients with congestive heart failure," 2015. Advisor for protocol, IRB application, internal grant application.
176. Michael Entrup, **Anesthesiology**, "Association of delirium and mortality with type of anesthesia following surgical repair of hip fractures in elderly patients," 2014. Completed protocol.
 177. Suresh Basnet, **Critical Care Medicine**, "Hospital readmission rate and mortality outcomes associated with poly-pharmacy and potentially inappropriate medications use in elderly: a cohort analysis," 2014. Completed protocol, IRB application.
 178. Allison Ball, **Gynecologic Oncology**, "Provider adherence to current cervical cancer screening guidelines," 2014. Completed protocol, feasibility (PTR) study.
 179. Li Zhang, **Anesthesiology**, "Anesthesia risk factors for cerebral palsy," 2014. Completed protocol, IRB application, study in progress.
 180. Michael Kordek, **Family Practice**: "Documenting alert fatigue in electronic health records," 2014. Completed protocol, IRB application.
 181. Jason Jarinko, **Sports Medicine**: "Balance assessment and return-to-play," 2014. Completed protocol, IRB application.
 182. Thomas Schiebe, **Anesthesiology**, "Earlobe glucose measurement," 2013. Completed protocol, IRB application.
 183. James Blankenship, **Cardiology**, "Physician radiation exposure," 2013. Completed protocol.
 184. Sandy Green, **Cardiology**, "Training in cardiac catheterization," 2013. Grant prepared for AHRQ.
 185. Abraham Layon, **Critical Care Medicine**: "Culture of safety and quality," 2013. Completed protocol, grant submission to CMMI/HCIA.
 186. Ron Harris, **Endocrinology**: "V-GO Insulin Delivery," 2013. Completed protocol, grant application to sponsor.
 187. Timothy Swift, **Family Practice**: "Medication use agreements in narcotics management" 2013. Completed protocol, internal grant submission.
 188. Jila Kaberi-Kaberi, **Internal Medicine**: "Probiotics and *C.diff* infection," 2013. Completed protocol, IRB application.
 189. Sally Tice, **Pharmacy**: "Duplicate GI prophylaxis after catheter ablation," 2013. Completed protocol, IRB application, analysis, abstract prepared.
 190. Eric Newman, **Rheumatology**: "Ask-A-Doc Rheumatology," 2013. Completed grant application to CMMI/HCIA.
 191. Robert Garvin, **Vascular Surgery**: "Stroke and GI bleeding following cardiac artery stenting vs. cardiac endarterectomy," 2013. Completed protocol, IRB application, analysis, manuscript submitted to *J Vascular Surgery*.
 192. Daniel Horwitz, **Orthopedics**: "AO Outcomes Center," 2013. Completed protocol, prepared grant application to AO.
 193. Daniel Horwitz, **Orthopedics**: "FORTEO osteoporosis medication," 2013. Completed protocol, industry grant application, IRB application.
 194. James Widmaier, **Orthopedics**: "Driving reaction times after total joint replacement," 2013. Completed protocol, internal grant application, IRB application.
 195. John Han, **Interventional Pain**: "Spinal cord stimulation therapy in failed back surgery syndrome," 2012. Completed protocol, internal grant application.
 196. Matthew Eccher, **Neurology**, "Intraoperative monitoring of stimulation," 2012. Completed protocol.
 197. Paul Roda, **Oncology**: "GMPN1 colorectal screening," 2012. Protocol development.
 198. John Beck, **Orthopedics**: "Improvement in OITE exams," 2012. Completed analysis, manuscript published in *J Graduate Medical Education*.
 199. John Beck, **Orthopedics**: "Risk factors for pediatric supracondylar humerus fractures," 2012. Completed analysis, manuscript published in *Orthopedics*.

e. Other Internal Mentoring Support

200. David Meredith, **Interventional Pain**, "Redesign of Room Scheduling at Woodbine," 2017.
201. Lyn Boocock-Taylor, **Development**: "Community care," 2013. Grant application to CMMI/HCIA.
202. Michael Evans, **Pharmacy**: "Diabetes telemonitoring and self-management," 2014. Grant application submitted to PCORI.
203. Debra Sanders, **Transplant**: "Cumulative sum control charts for transplant graft rejection," 2013. Built analysis tool for department quality improvement.

IX. PEER REVIEWED PUBLICATIONS

a. Archival Journal Papers – In Press or Published

1. Drozda-JP, **Graham-J**, Muhlestein-JB, Tcheng-JE, Roach-J, Forsyth-T, Knight-S, McKinnon-A, May-H, Wilson-NA, Berlin-JA, Simard-EP, "Multi-institutional distributed data networks for real world evidence about medical devices: Building Unique device identifiers Into Longitudinal Data (BUILD)," *JAMIA Open* 5(2), 2022, 1-11. doi: 10.1093/jamiaopen/ooac035.
2. **Graham-J**, Novosat-T, Sun-H, Piper-BJ, Boscarino-JA, Kern-MS, Hayduk-VA, Beck-C, Robinson-RL, Casey-E, Hall-J, Dorling-P, Wright-EA, "Associations of healthcare utilization and costs with increasing pain and treatment intensity levels in osteoarthritis patients: an 18-year retrospective study," *Rheum Ther* 2022 May 10. doi: 10.1007/s40744-022-00448-7.
3. **Graham-J**, Iverson-A, Monteiro-J, Weiner-K, Southall-K, Schiller-K, Gupta-M, Simard-EP, "Applying computable phenotypes within a common data model to identify heart failure patients for an implantable cardiac device registry," *IJC Heart and Vasculature* 2022; 39:100974. doi: 10.1016/j.ijcha.2022.100974
4. Jones-LK, Hayduk-V, Romagnoli-KM, Flango-A, Marks-J, **Graham-J**, Gionfriddo-MR, "Evaluation of an educational strategy to improve medication reconciliation in ambulatory care," *J Am Pharm Assoc* 2022: 1-10. doi: 10.1016/j.japh.2022.01.010
5. Wilson-NA, Tcheng-JE, **Graham-J**, Drozda-JP, "Advancing patient safety surrounding medical devices: a health system roadmap to implement unique device identification at the point of care," *Medical Devices: Evidence and Research* 2021; 14(411-421).
6. Gionfriddo-MR, Duboski-V, Middernacht-A, Kern-MS, **Graham-J**, Wright-EA, "A mixed methods evaluation of medication reconciliation in the primary care setting," *PLoS One* 2021 Dec 2; 16(12):e0260882.
7. Jones-LK, Ladd-IG, Gregor-C, Evans-MA, **Graham-J**, Gionfriddo-MR, "Evaluating implementation outcomes (acceptability, adoption, and feasibility) of two initiatives to improve the medication prior authorization process," *BMC Health Services Research* 2021; 21:1259. doi: 10.1186/s12913-021-07287-2.
8. Hart-K, Andrick-B, Grassi-S, Manikowski-J, **Graham-J**, "Cancer-associated venous thromboembolism treatment with anti-Xa versus weight-based enoxaparin: a retrospective evaluation of safety and efficacy," *Ann Pharmacother* 2021 Sep; 55(9):1120-26. doi: 10.1177/1060028020988362.
9. Armbuster-YC, Banas-BN, Feickert-KD, England-SE, Moyer-EJ, Christie-EL, Chughtai-S, Giuliani-TJ, Halden-RU, **Graham-JH**, McCall-KL, Piper-BJ, "Decline and pronounced regional disparities in medical cocaine usage in the United States," *J Pharm Technology* 2021: 1-8. doi: 10.1177/87551225211035563.
10. Lussier-M, Learn-LS, Aftewicz-H, Webster-L, Gazes-S, Kern-MS, Gionfriddo-M, **Graham-J**, Longyhore-DS, Wright-EA, "Implementation and evaluation of a centralized pharmacy telehealth center within an integrated health delivery system," *J Am Coll of Clin Pharm* 2021 (accepted, in press). DOI: 10.1002/jac5.1505.
11. Wilson NA, Reich A, **Graham J**, Bhatt DL, Nguyen LL, Weissman J. "Patient perspectives on the need for implanted device information: implications for a post-procedure communication framework," *Health Expect*. 2021; 24:1391-1402. DOI: 10.1111/hex.13273
12. Graybill-M, Gionfriddo-M, **Graham-J**, Webster-L, Duboski-V, Kern-M, Wright-E, "Medication therapy problems identified by pharmacists conducting telephonic comprehensive medication management within a team-based at-home care program," *J Am College of Clin Pharm* 2021, 4(7):801-807.
13. Krupka-DC, **Graham-J**, Wilson-NA, Li-A, Landman-AB, Bhatt-DL, Nguyen-LL, Reich-AJ, Gupta-A, Zerhouni-YA, Capatch_KJ, Concheri-KP, Weissman, JS, "Transmitting device identifiers of implants from the point of care to insurers: a demonstration project," *Journal of Patient Safety* 2021, 17(3):223-230.
14. Blanchard-C, Duboski-V, **Graham-J**, Webster-L, Kern-MS, Wright-EA, Gionfriddo-MR, "A mixed methods evaluation of the implementation of pharmacy services within a team-based at-home care program," *Research in Social and Administrative Pharmacy*, 2021 Mar 2; S1551-7411(21)00079-6. doi:10.1016/j.sapharm.2021.02.017

15. Grandizio-LC, Gehrman-MD, **Graham-J**, Dwyer-L, Sharma-J, Goldberg-S, Klena-JC, "The ability of upper extremity surgeons to assess patients' functional status," *Journal of Hand Surgery*, 2021 Apr 9; S0363-5023(21)00095-2. doi: 10.1016/j.jhsa.2021.02.007.
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c. Other peer-reviewed, non-journal publications

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d. Conference Papers - Podium Presentations

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88. Hayes-D, Graham-J, Rudararaju-R, Kolessar-D, "Robotic assisted technology in knee arthroplasty: healthcare costs and utilization," *Pennsylvania Orthopaedic Society Annual Meeting*, October 14, 2021 (virtual) – **2nd Place Resident/Fellow Award Recipient**
89. Torino-D, Damsgaard-C, **Graham-J**, Foster-BK, Constantino-J, Hayes-D, Kolessar-D, "Tibial baseplate-cement interface debonding in the ATTUNE total knee arthroplasty system," *Pennsylvania Orthopaedic Society Annual Meeting*, October 14, 2021 (virtual)
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114. **Graham-J**, Bowen-TR, Strohecker-KA, Irgit-K, Smith-WR, "Reduced mortality in hip fracture patients: combining a perioperative approach and medical home care," *Annual Meeting of the American Academy of Orthopedic Surgeons (AAOS)*, Chicago, IL, March 19-23, 2013.
115. Reid-R, Solberg-L, **Graham-J**, Austin-B, "Case studies in evaluating the patient-centered medical home in the HMO Research Network," *Annual Conference of the HMO Research Network*, Boston, MA, March 23-25, 2011.
116. Pitcavage-J, Leader-J, **Graham-J**, Kirchner-H, Jones-JB, "Overestimation of population level medication adherence: bias in the MPR calculation of hypertensive patients," *Annual Conference of the HMO Research Network*, Boston, MA, March 23-25, 2011.

117. Bloom-F, Langer-RD, **Graham-J**, Townsend-RR, Hennessey-S, "Trends in antihypertensive medication use among incident cases of hypertension, 2002-2006: the Geisinger Clinic population," *25th Annual Meeting of the American Society of Hypertension*, New York, NY, May 1-4, 2010.
118. Langer-RD, **Graham-J**, Hennessey-S, Townsend-RR, "Goal BP is achieved more often with classic compared to newer two-drug antihypertensive regimens," *AHA 50th Cardiovascular Disease Epidemiology and Prevention Conference*, March 2-5, 2010.
119. Langer-RD, **Graham-J**, Hennessey-S, Townsend-RR, Bloom-F, Weber-V, "Outcomes associated with thiazide combinations for 2nd-line treatment of hypertension in older patients," *Annual Conference of the HMO Research Network*, Danville, PA, April 26-29, 2009.
120. Langer-RD, **Graham-J**, Weiner-MG, Eachus-SE, Reardon-J, Blosky-MA, Turner-BJ, "Effects of race and comorbidities on differences in blood pressure control in urban and rural populations," *Annual Conference of the HMO Research Network*, Danville, PA, April 26-29, 2009.
121. Tomcavage-J, **Graham-J**, Roy-J, Gilfillan-R, Goldman-R, Weikel-K, Wolstein-A, "Measuring the effect of a patient-centered health initiative on clinic-level outcomes," *Annual Conference of the HMO Research Network*, Danville, PA, April 26-29, 2009.
122. **Graham-J**, Rukstalis-D, Roy-J, Simmons-S, Bengier-A, "Converting between short and long form versions of a self-reported erectile dysfunction symptom score," *Annual Meeting of the American Urological Association*, Orlando, FL, May 17-22, 2008.
123. Ahn-C, **Graham-J**, "Experimental design for assessing the effect of bone density on mechanical properties after vertebroplasty," *Joint Statistical Meetings*, Salt Lake City, UT, 2007.
124. **Graham-J**, Ries-M, Pruitt-L, "Fracture toughness of the trabecular bone/cement interface sensitive to initial crack length," *Transactions of the 48th Annual Meeting, Orthopaedic Research Society*, 2002.
125. Liu-Q, **Graham-J**, Hall-RS, Robinovitch-SN, "Strength and flexibility influences on age-related changes in functional reach," *Proceedings of the 17th World Congress, International Association of Gerontology*, 2001.
126. Gundiah-N, **Graham-J**, Ries-M, Pruitt-L, "Fatigue life of acrylic bone cement: the relative effects of mixing, sterilization method, and molecular weight," *Transactions of the Sixth World Biomaterials Congress*, 2000.
127. **Graham-J**, Ries-M, Pruitt-L, "Cement penetration depth significantly affects fracture toughness at the trabecular bone/cement interface," *Transactions of the 27th Annual Meeting, Society For Biomaterials*, 2001.

e. Conference Papers – Poster Presentations

128. **Graham-J**, "Can we use machine learning to remove outdated medications from the patient's medication list?" *Health Care Systems Research Network 2022 Conference*, April 12-14, 2022, Pasadena, CA.
129. Jones-L, Romagnoli-K, Flango-A, **Graham-J**, Gionfriddo-M, "Evaluation of an educational strategy to improve medication reconciliation in ambulatory care," *Dissemination & Implementation Conference (Virtual)*, December 14-16, 2021.
130. Torino-D, Constantino-J, Kolessar-DJ, Damsgaard-C, Foster-BK, Hayes-D, **Graham-JH**, "Tibial baseplate-cement interface debonding in the ATTUNE Total Knee Arthroplasty System," *2021 American Association of Hip and Knee Surgeons Annual Meeting*, Dallas, TX, November 11-14, 2021.
131. Fasan-O, Vadakara-J, Lantos-L, Bernhart-C, **Graham-J**, Ward-K, "The absolute CD4+ T cell count at day +100 post autologous hematopoietic cell transplantation impacts disease response in patients with multiple myeloma," *Cell Therapy Transplant Canada Annual Meeting (virtual)*, June 13-16, 2021.
132. **Graham-J**, Novosat-T, Sun-H, Piper-B, Boscarino-J, Kern-M, Duboski-V, Wright-E, Robinson-RL, Casey-E, Beck-C, Hall-J, Schepman-P, "Association between pain severity and healthcare utilization in an osteoarthritis population: an 18-year retrospective cohort study," *Annual European Congress of Rheumatology (EULAR) (virtual)*, June 2-5, 2021.

133. **Graham-J**, Muhlestein-J, Tchong-J, McKinnon-A, Knight-S, May-H, Bair-T, Drozda-J, "Building Medical Device Identifiers into Longitudinal Data: The BUILD Distributed Data Network," *27th Annual Health Care Systems Research Network Conference* (virtual), May 10-12, 2021.
134. Gionfriddo-M, Duboski-V, **Graham-J**, Kern-M, Wright-E, "A mixed methods evaluation of medication reconciliation using interviews and surveys in primary care practices," *27th Annual Health Care Systems Research Network Conference* (virtual), May 10-12, 2021.
135. Moore-C, Wong-R, **Graham-J**, "Development and implementation of a lung expansion protocol in the pediatric intensive care unit," *American Thoracic Society 2021 International Meeting*, May 14-19, 2021 (virtual).
136. **Graham-J**, Novosat-T, Sun-H, Piper-B, Boscarino-J, Kern-M, Duboski-V, Wright-E, Robinson-RL, Casey-E, Beck-C, Hall-J, Schepman-P, "Patterns of osteoarthritis care across severity levels defined by treatment intensity," *Osteoarthritis Research Society International Annual Meeting* (virtual), April 29-May 1, 2021.
137. Andrick-B, Mathur-A, Maiers-T, **Graham-J**, Vadakara-J, "Pharmacist versus physician provider management of hydroxyurea therapy for polycythemia vera (PERMANCE)," *American Society of Hematology 62nd Annual Meeting*, December 5-8, 2020 (virtual).
138. **Graham-J**, Novosat-T, Sun-H, Piper-B, Boscarino-JA, Kern-M, Duboski-V, Wright-E, Schepman-P, Robinson-R, Casey-E, Beck-C, Hall-J, "Osteoarthritis in a large integrated health system population: 18-year retrospective review," *American College of Rheumatology (ACR) Convergence*, November 8-10, 2020 (virtual).
139. Tusing-L, **Graham-J**, Rahm-AK, Wright-E, "Approaches used to develop a clinic-based medication disposal program targeting opioid-naïve patients," 26th annual Health Care Systems Research Network Conference, Philadelphia, PA, April 8-10, 2020.
140. Seeley-M, Fanelli-M, Sanchez-D, Ehrlich-B, Graham-J, "Using fracture asymmetry as a predictor in the treatment of pediatric lateral condyle fractures," *Pediatric Orthopaedic Society of North America Annual Meeting*, Charlotte, NC, December 1-5, 2019.
141. Shah-R, Diehl-D, **Graham-J**, Kim-A, Loughlin-M, "Understanding the role of osteopathic manipulative medicine in the management of gastrointestinal disorders and symptoms: a survey study," *Annual ACG Meeting*, San Antonio, TX, October 25-30, 2019. Also published in *Am J Gastroenterology* 2019 Oct; 114:S1558.
142. Grandizio-LC, **Graham-J**, Klena-J, "Current trends in WALANT surgery: a survey of ASSH members," *74th Annual Meeting of The Hand Society*, Las Vegas, NV, September 5-7, 2019.
143. Hao-J, Paglia-M, Hassen-D, Hao-Q, **Graham-J**, Cooper-M, Blessing-K, Snyder-S, "Economic burden of preeclampsia: maternal and infant healthcare costs," *39th Annual Society for Maternal Fetal Medicine Meeting*, 2019.
144. Ladd-I, Gregor-C, **Graham-J**, Evans-M, Gionfriddo-M and Jones-L, "Geisinger provider experience with prior authorization," *2019 Health Care Systems Research Network Conference*, Portland, OR, April 8-10, 2019.
145. Hao-J, Snyder-S, **Graham-J** et al., "Economic burden of preeclampsia: maternal and infant healthcare costs," 39th Annual SMFM Pregnancy Meeting, Las Vegas, NV, February 14-16, 2019.
146. Alejandro-S, Geswell-M, Grandizio-L, Graham-J, Cush-G, "The effect of depression on pain perception and function in the foot and ankle patient," *AOFAS Annual Meeting 2018*, Abstracts published in *Foot & Ankle Orthopaedics*, 3(3): doi: 10.1177/2473011418S00139.
147. Han-J, Baylor-K, Snyder-D, **Graham-J**, Bond-C, Wang-S, Baldrige-S, Sullivan-B, Alfieri-T, "Connecting patients to providers: application of wearable health technology to a multidisciplinary pain program," *PAINWeek*, Las Vegas, NV, September 4-8, 2018.
148. Zerhouni-Y, Krupka-D, **Graham-J**, Reich-A, Weissman-J et al., "Pilot to transfer the unique device identifier from the point of use to the insurance claim," *Academy Health Annual Research Meeting*, Seattle, WA, June 24-26, 2018.
149. Grassi-D, **Graham-J**, Maeng-D, Ye-X, Gomes-JP, Nathanson-DC, Wright-E, "Medication prescribing patterns of disease modifying therapies (DMTs) among patients with multiple sclerosis

- (MS) in a real-world MS clinic," *American Managed Care Pharmacy (AMCP) Annual Meeting*, Boston, MA, April 23-26, 2018.
150. Grassi-D, **Graham-J**, Maeng-D, Ye-X, Gomes-JP, Nathanson-DC, Wright-E, "Real-world outcomes and medication adherence to disease modifying therapies (DMTs) among patients with multiple sclerosis (MS)," *International Society of Pharmacoepidemiology Outcomes Research 23rd Annual International Meeting*, Baltimore, MD, May 19-23, 2018.
 151. Hao-J, Snyder-S, **Graham-J** et al., "Preeclampsia cost of illness: maternal and infant healthcare costs," *International Society of Pharmacoepidemiology Outcomes Research 23rd Annual International Meeting*, Baltimore, MD, May 19-23, 2018.
 152. Grassi-D, Sharry-Rogers-A, Lauver-A, **Graham-J**, Chronowski-J, Nathanson-DC, "The importance of pharmacist involvement in laboratory adherence for patients on disease modifying therapy for multiple sclerosis, utilizing a clinical dashboard," *Annual Meeting of the Consortium of Multiple Sclerosis Centers*, Nashville, TN, May 30-June 2, 2018.
 153. Jones-L, Ladd-L, **Graham-J**, Evans-M, Gionfriddo-M, "Exploring patient and healthcare professional experience with the medication prior authorization process within a rural healthcare setting," *Health Care Systems Research Network Conference*, Minneapolis, MN, April 11-13, 2018.
 154. Sumner-K, Grandizio-LC, Klena-J, Gehrman-M, **Graham-J**, "Incidence and reason for readmission and unscheduled healthcare contact after distal radius fracture," *American Society for Surgery of the Hand (ASSH) Annual Meeting*, San Francisco, CA, September 7-9, 2017.
 155. Maeng-DD, **Graham-J**, Bogart-M, Hao-J, Wright-EA, "Impact of a pharmacist-led diabetes management on outcomes, utilization and cost," *American Diabetes Association (ADA) Annual Meeting*, San Diego, CA, June 9-13, 2017.
 156. **Graham-J**, Alfieri-T, Baylor-K, Robishaw-S, Bond-C, Mayne-T, Han-J, "Wearable health technologies to treat chronic pain: establishing baseline treatment effects in a multidisciplinary pain program," *American Managed Care Pharmacy (AMCP) Annual Meeting*, Denver, CO, March 27-30, 2017.
 157. Borade-A, Kempegowda-H, **Graham-J**, Suk-M, Horwitz-D, "Association of knee alignment and quality of reduction with subsidence after internal fixation of tibial plateau fractures in elderly patients," *Orthopaedic Trauma Association (OTA) Annual Meeting*, Potomac, MD, October 8-10, 2016.
 158. Kempegowda-H, Richard-R, Borade-A, Tawari-A, **Graham-J**, Suk-M, Howenstein-A, Kubiak-E, Horwitz-D, "Obesity is associated with high peri-operative complications among surgically treated intertrochanteric fracture of the femur," *Orthopaedic Trauma Association (OTA) Annual Meeting*, Potomac, MD, October 8-10, 2016.
 159. Kempegowda-H, Maniar-H, Richard-R, Tawari-A, **Graham-J**, Suk-M, Beebe-MJ, Han-C, Tornetta-P, Kubiak-E, Horwitz-D, "Posterior malleolar fractures associated with tibial shaft fractures and sequence of fixation," *Orthopaedic Trauma Association (OTA) Annual Meeting*, Potomac, MD, October 8-10, 2016.
 160. McPhillips-K, Tawari-A, Maniar-H, Kempegowda-H, **Graham-J**, Suk-M, Horwitz-D, "Reversal of anticoagulation prior to hemiarthroplasty," *American Orthopaedic Association (AOA) Annual Meeting*, Seattle, WA, June 22-25, 2016.
 161. Maniar-HM, Tawari-A, **Graham-J**, Marcantonio-AJ, Bramlett-K, Kempegowda-H, Suk-M, Horwitz-DS, "Role of computed tomography (CT) scan of the head in low energy geriatric femur fractures," *American Orthopaedic Association (AOA) Annual Meeting*, Seattle, WA, June 22-25, 2016.
 162. **Graham-J**, Meadows-ES, Hang-L, Fang-L, Goates-S, Partridge-J, "Oral nutrition supplements in inpatient and outpatient settings: patient characteristics at time of initiation," *International Society for Pharmacoconomics and Outcomes Research (ISPOR) 21st Annual Meeting*, Washington, DC, May 21-25, 2016. Abstract published in *Value In Health* May 2016, 19(3):A180.
 163. Colaco-M, **Graham-J**, Danella-J, Fluck-M, Rukstalis-DB, "The impact of age on outcomes after bladder outlet procedures," *Annual Meeting of the American Urological Association*, San Diego, CA, May 6-10, 2016.

164. Jones-L, **Graham-J**, Evans-M, Harris-R, Wright-E, "Oral antidiabetic medication adherence and glycemic control associated with fewer hospitalizations and emergency department visits," *Health Care Systems Research Network 2016 Annual Meeting*, Atlanta, GA, April 14-15, 2016.
165. McPhillips-K, Tawari-A, Maniar-H, Kempegowda-H, **Graham-J**, Suk-M, Horwitz-D, "Reversal of Anticoagulation Prior to Hemiarthroplasty," *Pennsylvania Orthopaedic Society*, Boca Raton, FL, April 8-9, 2016.
166. Rutter-M, Wingert-N, Podobinski-M, **Graham-J**, Gotoff-J, Ghanem-E, "Warfarin anticoagulation after primary total joint arthroplasty: does the international normalized ratio matter?," *American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting*, Orlando, FL, March 1-5, 2016.
167. Kempegowda-H, Maniar-H, Richard-R, Tawari-A, **Graham-J**, Han-C, Tornetta III-P, Kubiak-E, Horwitz-D, "Posterior malleolar fractures associated with tibia fractures: incidence and the sequence of fixation," *American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting*, Orlando, FL, March 1-5, 2016.
168. Kempegowda-H, Maniar-HH, Richard-R, Tawari-A, **Graham-J**, Han-C, Tornetta-P, Kubiak-EN, Horwitz-DS, "Posterior malleolar fractures associated with tibia fractures: incidence and the sequence of fixation," *American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting*, Orlando, FL, March 1-5, 2016.
169. Rutter-M, Richard-R, Parrilla-E, **Graham-J**, Murphy-J, Ghanem-E, "Warfarin anticoagulation after primary total joint arthroplasty: does INR matter?" *Eastern Orthopaedic Association Annual Meeting*, Maui, HI, June 17-20, 2015.
170. **Graham-J**, Hao-J, Pitcavage-J, Hoegerl-C, Jones-JB, Taylor-SR, Ryman-A, "Measuring adherence and outcome in treatment of multiple sclerosis in the Geisinger Clinic," *International Society for Pharmacoconomics and Outcomes Research (ISPOR) 20th Annual Meeting*, Philadelphia, PA, May 16-20, 2015.
171. Menon-N, Evans-R, **Graham-JH**, Vituanc-M, Pogge-C, Francis-D, Francis-CR, Bulger-J, Simonelli-PF, "Adherence and outcomes of implementing the ProvenCare model in patients with COPD admitted for exacerbations," *American Thoracic Society Annual Meeting*, Denver, CO, May 15-17, 2015.
172. **Graham-J**, Sanchez-RJ, Evans-MA, Mallya-UG, Panaccio-MP, Steinhubl-SR, "Clinical and economic consequences of statin intolerance in the U.S.: results from an integrated health system," *2015 AHA/ASA Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke Meeting*, Baltimore, MD, April 29-May 1, 2015.
173. McPhillips-K, Tawari-A, Maniar-H, Kempegowda-H, **Graham-J**, Suk-M, Horwitz-D, "Reversal of anticoagulation prior to hemiarthroplasty," *Pennsylvania Orthopaedic Society Annual Meeting*, Harrisburg, PA, April 10-12, 2015.
174. Parrilla-E, Richard-R, Rutter-M, **Graham-J**, Bowen-TR, Ghanem-E, "Clopidogrel use prior to hemiarthroplasty for femoral neck fracture does not preclude good outcome," *American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting*, Las Vegas, NV, March 24-28, 2015.
175. Wingert-N, Parrilla-E, **Graham-J**, Crofoot-C, Kolessar-D, Ghanem-E, "Aspirin vs. potent anticoagulants for venous thromboembolism prevention after total joint arthroplasty," *American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting*, Las Vegas, NV, March 24-28, 2015.
176. McPhillips-K, Maniar-H, **Graham-J**, Suk-M, Horwitz-D, "Compliance in intermittent pneumatic compression (IPC) devices following educational intervention," *AO North America Annual Meeting*, Las Vegas, NV, February 5-7, 2015.
177. McPhillips-K, Maniar-H, **Graham-J**, Horwitz-D, "Risk for complications following hemiarthroplasty for femoral neck fracture in patients on warfarin," *AO North America Annual Meeting*, Las Vegas, NV, February 5-7, 2015.
178. Parrilla-E, Richard-R, Rutter-M, **Graham-J**, Bowen-T, Ghanem-E, "Clopidogrel Use Prior to Hemiarthroplasty for Femoral Neck Fracture Does Not Preclude Good Outcome," *American Association of Hip and Knee Surgeons Annual Meeting*, Dallas, TX, November 7-9, 2014.
179. **Graham-J**, Horwitz-D, "Sensitivity of patient-reported physician percentile rankings to inter-physician variability and patient sample size," *2014 HMO Research Network Annual Meeting*,

- Phoenix, AZ, April 1-4, 2014. ***Nominated for 2014 Poster Competition for Statistical Research and Methods category.*
180. Deegan-BF, Richard-RD, Bowen-TR, **Graham-J**, Perkins-R, Foltzer-MA, "Lower stages of chronic kidney disease (CKD) do not affect outcomes after total hip or knee arthroplasty," *2013 American Public Health Association Meeting*, Boston, MA, November 2-6, 2013.
 181. Jubelt-L, **Graham-J**, Maeng-D, Metlay-J, "Case management performance in a medical home and associations with patient satisfaction and healthcare utilization," *2013 Society for General Internal Medicine 36th Annual Meeting*, Denver, CO, April 24-27, 2013.
 182. Karia-R, Slover-JD, Hauer-C, Gelber-Z, **Graham-J**, Band-PA, "Networking to capture patient-reported outcomes (PROs) during routine orthopaedic care across two distinct institutions," *2013 World Congress on Osteoarthritis, Osteoarthritis Research Society International*, Philadelphia, PA, April 18-21, 2013.
 183. Hoegerl-C, **Graham-J**, Jafree-I, Bieniek-A, "Comorbid diseases and medication adherence in a multiple sclerosis population," *Annual Meeting of the Consortium of Multiple Sclerosis Centers (CMSC)*, Orlando, FL, May 30-June 1, 2013.
 184. **Graham-J**, Jones-J, Bieniek-A, Dille-A, et al., "Medication use and comorbid diseases in a Multiple Sclerosis (MS) population: electronic health record-based data," *28th Int'l Conference on Pharmacoepidemiology and Therapeutic Risk Management*, Madrid, Spain, June 2012.
 185. **Graham-J**, Bowen-T, Smith-W, Irgit-K, "Management of hip fracture patients using a standardized perioperative approach combined with a medical home primary care model: a new standard for better outcomes?" *28th Annual Meeting of the Orthopaedic Trauma Association*, Minneapolis, MN, October 3-6, 2012.
 186. **Graham-J**, Rukstalis-D, "Longitudinal bladder health outcomes in men managed with extirpative surgery for prostatic disease," *Annual Meeting of the American Urological Association*, Atlanta, GA, May 19-23, 2012.
 187. Hou-Z, **Graham-J**, Feldmann-D, Strohecker-K, Smith-WR, Feltham-G, "Single vs. two-tunnel technique during open treatment of acromioclavicular joint disruption," *Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS)*, San Francisco, CA, February 7-11, 2012.
 188. **Graham-J**, Langer-RD, Weiner-MG, Eachus-SE, Reardon-J, Blosky-MA, Turner-BJ, "Differences in prescription adherence vs. blood pressure control: linking electronic health record and claims data," *Annual Conference of the HMO Research Network*, Danville, PA, April 26-29, 2009.
 189. Langer-RD, **Graham-J**, Hennessey-S, Townsend-RR, Bloom-F, Weber-V, "Increased incident renal disease with ACE-I + thiazide therapy for hypertension: the Geisinger Clinic population," *Annual Conference of the HMO Research Network*, Danville, PA, April 26-29, 2009.
 190. **Graham-J**, Langer-RD, Weiner-MG, Reardon-JE, Eachus-S, Cook-J, Blosky-MA, Turner-BJ, "Prescription adherence differs by gender, age and comorbidity and affects blood pressure control outcomes: linking electronic health record and claims data," *9th Scientific Forum on Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke*. Baltimore, MD, April 30-May 2, 2008.
 191. Langer-RD, **Graham-J**, Weiner-MG, Eachus-S, Reardon-JE, Blosky-MA, Turner-BJ, "Differences in blood pressure control in urban and rural populations, effects of race and comorbidities: the Geisinger Clinic and University of Pennsylvania populations," *48th American Heart Association Cardiovascular Disease Epidemiology and Prevention Annual Conference*, Colorado Springs, CO, March 13-15, 2008.
 192. **Graham-J**, Hai-N and Buch-BD, "Bone density affects relationship between cement dose and mechanical strength after vertebroplasty," *2006 FDA Science Forum*, Washington, DC, April 18-20, 2006.
 193. **Graham-J**, Hai-N and Buch-B, "Bone density affects relationship between cement dose and mechanical strength after vertebroplasty," *52nd Annual Meeting of the Orthopaedic Research Society*, Chicago, IL, March 19-22, 2006.
 194. Mudano-AS, Bian-J, Sampsel-S, Elkins-M, Briggs-D, Neal-A, Cope-J, Gross-T, McGunagle-D, **Graham-J**, Ferriter-A, Saag-K, "Characteristics of vertebroplasty patients: an analysis of claims

- data from a large not-for-profit healthcare insurer,” *27th Meeting of the American Society for Bone Mineral Research*, Nashville, TN, September 23-27, 2005.
195. Mudano-AS, Bian-J, Sampsel-S, Elkins-M, Briggs-D, Neal-A, Cope-J, Gross-T, McGunagle-D, **Graham-J**, Ferriter-A, Saag-K, “Characteristics of vertebroplasty patients: an analysis of claims data from a large not-for-profit healthcare insurer,” *21st International Conference on Pharmacoepidemiology and Therapeutic Risk Management*, Nashville, TN, August 21-24, 2005.
 196. Dermody-NC, **Graham-J**, Woods-TO, “Mechanical Characterization of Calcaneus Bone,” *2004 FDA Science Forum*, Washington DC, May 18-19, 2004
 197. Collons-L, **Graham-J**, Chawan-A, Ries-M, Pruitt-L, “Mechanisms of fatigue in highly crosslinked UHMWPE,” *Proceedings of the 49th Annual Meeting, Orthopaedic Research Society*, New Orleans, LA, 2003.
 198. **Graham-J**, Ries-M, Pruitt-L, “Initial crack length and volume fraction effects on fracture toughness at bone/cement interface,” *Transactions of the 28th Annual Meeting, Society For Biomaterials*, Tampa, FL, 2002.
 199. Bradford-Collons-L., Ries-M, Chawan-A, **Graham-J**, Pruitt-L, “Crosslinked polyethylene shows evidence of wear and fatigue: a retrieval study of Durasul liners,” *Transactions of the 28th Annual Meeting, Society For Biomaterials*, Tampa, FL, 2002.
 200. **Graham-J**, Ries-M, Pruitt-L, “Trabecular orientation, bone porosity and cement pressure significantly affect fracture toughness at the bone-cement interface,” *Proceedings of the 47th Annual Meeting, Orthopaedic Research Society*, San Francisco, CA, 2001.
 201. Gunther-S, **Graham-J**, Norris-T, Ries-M, Pruitt-L, “A quantitative evaluation of surface damage in retrieved total shoulder prostheses,” *Transactions of the 47th Annual Meeting, Orthopaedic Research Society*, San Francisco, CA, 2001.
 202. Hughes-K, Pelletier-B, Stutz-A, **Graham-J**, Lawrence-A, Ries-M, Pruitt-L, “Artificial aging of acrylic bone cements,” *Transactions of the Sixth World Biomaterials Congress*, Kona, HI, 2000.
 203. **Graham-J**, Gundiah-N, Ries-M, Pruitt-L, “Effect of sterilization and mixing method on fracture properties of acrylic bone cement,” *Proceedings of the 46th Annual Meeting, Orthopaedic Research Society*, Orlando, FL, 2000.
 204. Ries-M, **Graham-J**, Pelletier-B, Goldman-M, Pruitt-L, “Effect of sterilization method on polymethyl-methacrylate bone cement,” Winner of the Alonso J Neufeld Award, Western Orthopaedic Association, 1998.
 205. Pelletier-B, **Graham-J**, Goldman-M, Muller-S, Ries-M, Pruitt-L, “The effect of sterilization and aging on the molecular properties of acrylic bone cement,” *Transactions of the 24th Annual Meeting, Society For Biomaterials*, San Diego, CA, 1998.
 206. Naidu-SH, Pelligrini-VD, **Graham-J**, Norin-S, Laird-C, “Pre and post implantation dynamic mechanical properties of Silastic HP-100 finger joints,” *Proceedings of the 42nd Annual Meeting, Orthopaedic Research Society*, New Orleans, LA, 1996.

X. INVITED ARTICLES and BOOK CHAPTERS

207. **Graham-J** and Richards-D, “Professional development for the practicing pharmacist: developing a research question,” invited article for *Pennsylvania Pharmacist Magazine*, May/June 2019, pp. 33-34.
208. **Graham-J**, Peck-J, “FDA Regulation of PEEK Implants,” *The PEEK Biomaterials Handbook 2nd ed.*, S. Kurtz, ed. San Diego: Elsevier Academic Press, 2019.
209. Pulk-RA, **Graham-J**, Lichtenberg-F, Maeng-D, Williams-MS and Wright-E, “The value of cytochrome P450 2C19 pharmacogenomic information for patients receiving clopidogrel therapy following a major cardiovascular event: evidence from Geisinger,” *Economic Dimensions of Personalized and Precision Medicine*. National Bureau of Economic Research, Inc., Berndt, Goldman and Rowe, eds. Chicago: University of Chicago Press (2019).
210. Rosenthal-MB, Abrams-MK, Bitton-A and the Patient-Centered Medical Home Evaluators’ Collaborative (incl. **Graham-J**), “Recommended core measures for evaluating the patient-centered

medical home: cost, utilization, and clinical quality," *The Commonwealth Fund Data Brief, Pub. 1601, Vol.12, May 2012.*

211. Jensen-L, Spenciner-D, **Graham-J** and Anderson-P, eds. *Static and Dynamic Spinal Implants: Are We Evaluating Them Appropriately?* West Conshohocken, PA: ASTM International (2012).
212. **Graham-J**, Graf-T, Stewart-W, "The medical home experience: the patient's role in shared decision making, and team communication " in *Core Value, Community Connections: Care Coordination in the Medical Home.* Vienna, VA: Health2Resources (2011).
213. **Graham-J**, Peck-J, "FDA Regulation of PEEK Implants," *The PEEK Biomaterials Handbook*, S. Kurtz, ed. San Diego: Elsevier Academic Press (2011).
214. **Graham-J**, "Public Sector Research, Development and Regulation," *Careers in Biomedical Engineering*, G. Madhavan, ed. New York: Springer (2008).
215. **Graham-J**, "Standard Test Methods for Spine Implants," *Spine Technology Handbook*, S.M. Kurtz and A.A. Eddin, eds. San Diego: Elsevier Academic Press (2006).

XI. INVITED TALKS

1. "Using the Literature to Answer Your Clinical Questions," Geisinger OBGYN Grand Rounds, August 29, 2019.
2. "Developing the Research Question," Geisinger Commonwealth School of Medicine, Summer Research Student Program, July 18, 2019.
3. "Product Traceability Through Clinical Inventory Management: Beginning With the End in Mind," invited guest speaker for SCAN Health Network's Annual Networking Event, Calgary, AB, June 5, 2018.
4. "Accelerating Transformation Through Embedding and Scaling Supply Chain Best Practices," invited guest speaker for SCAN Health Network's Inaugural Global Networking Event, St. Louis, MO, September 26, 2017.
5. "Evidence Generation from the Hospital Perspective: How Do Hospitals Fit Into the National Evaluation System for Health Technologies," guest speaker for 2016 FDA Symposium on the Role of Hospitals in Modernizing Evidence Generation for Device Evaluation, December 5, 2016.
6. "Developing the research question," guest speaker for Resident and Fellow Scholarship Day, Geisinger Medical Center, May 6, 2016.
7. "Real-World Evidence for Medical Devices: Unique Device Identifiers," plenary speaker for 2016 Canadian Agency for Drugs and Technology in Health (CADTH) Symposium, April 12, 2016.
8. "Postmarket Assessment in the U.S. and Unique Device Identifiers (UDI)," guest speaker for 2016 Canadian Agency for Drugs and Technology in Health (CADTH) Symposium, April 11, 2016.
9. "Engineering and Big Data in Healthcare," guest speaker for EGR395 Fall Seminar in Engineering, Elizabethtown College, October 9, 2014.
10. "Developing the research question," guest speaker for Resident and Fellow Scholarship Day, Geisinger Medical Center, May 1, 2014.
11. "Challenges in Embedded Research," invited member of 3-person expert panel, 2014 HMO Research Network Annual Meeting, Research Administrators' Forum, Phoenix, AZ, April 3, 2014.
12. Invited participant in 12-person small-group meeting, "Implementation of Unique Identifiers (UDI) into Providers' Information Systems," The Brookings Institution, Washington, DC, March 10, 2014.
13. "Lessons for PCMH Implementation and Spread: Examining Variation Across Clinics Within a System," invited guest speaker for the Patient Centered Medical Home Evaluators' Collaborative Meeting, Baltimore, MD, June 25, 2013.
14. "Healthcare Transformation Group (HTG) R&D and Unique Device Identifiers," invited guest speaker for the GS1 US Healthcare Provider monthly teleconference, May 16, 2013.
15. "Developing the research question," guest speaker for Resident and Fellow Scholarship Day, Geisinger Medical Center, May 2, 2013.
16. "Observational clinical studies using large electronic datasets," invited speaker to ELEC 402: Genomic Signal Processing, Department of Electrical Engineering, Bucknell University, September 21, 2012.
17. "Using large electronic datasets for observational clinical studies in an integrated health system," invited speaker for Bucknell Institute for Public Policy series, July 17, 2012.

18. "Living in a variable world: why we (unfortunately) need statistics," invited speaker at journal club, Orthopedic Spinal Devices Branch, FDA, Silver Spring, MD. January 10, 2012.
19. "Propensity score methods for estimating treatment effects in observational studies," Geisinger Center for Health Research seminar series, August-November 2011.
20. "Recent Trends in FDA Adverse Reporting for Spinal Implants," *2011 Pittsburgh Spine Summit*, Allegheny General Hospital, Pittsburgh, PA, September 9, 2011.
21. "Diffusing Care Coordination Models: Translating Research Into Policy & Practice," invited discussion facilitator for The Gerontological Society of America's Scientific Summit, Washington DC, September 16, 2010.
22. "The Impact of Medical Home on Patient Outcomes and Costs," invited speaker for webinar on *Medical Homes: How Coordinated Health Care Delivery Can Help Maximize Revenue Growth*, sponsored by Zurich NA, February 24, 2010.
23. "Medical Device Regulation and the FDA," guest lecture to Biomedical Engineering 408 class, Bucknell University, February 8, 2010.
24. "FDA Premarket Review of Medical Devices," guest lecture to Biomedical Engineering 408 class, Bucknell University, February 9, 2007.
25. "Biomedical Engineering at the FDA," Biomedical Engineering guest lecture, Bucknell University, November 10, 2006.
26. "Osteoporosis and Vertebroplasty," Hungry Minds seminar, Geisinger Center for Health Research, October 19, 2006.
27. "Biomedical Engineering Careers in the Federal Government," 28th Annual International Conference of IEEE/EMBS, New York, August 31, 2006.
28. "Osteoporosis and Vertebroplasty," FDA Division of General, Neurological and Restorative Devices Clinical Grand Rounds Seminar, May 24, 2006.
29. "Evaluating the Effectiveness of Vertebroplasty for Improving the Mechanical Properties of the Spine in Patients with Osteoporosis," Committee for the Advancement of FDA Science seminar, March 10, 2006.
30. "Bioengineering in the Public Health Arena: Life as a P-H-D at the F-D-A," UCSF/UCB Bioengineering Graduate Group Annual Retreat, Tahoe City, CA, October 23, 2004.
31. "Testing and Evaluation of Wear Debris," FDA Orthopaedic and Rehabilitative Devices Panel, June 2-3, 2004, open public forum concerning new device application for the first artificial lumbar disc replacement
32. "Benches, Bedsides, and Better Medical Devices: The Goals and Roles of the FDA," lecture to senior undergraduate course *Bioengineering 117: Structural Aspects of Biomaterials* at University of California, Berkeley, CA, March 4, 2004.
33. "Medical Device Engineering at the FDA: Science, Law Enforcement, and YOU," College of Engineering, University of California, Berkeley, CA, March 11, 2004.
34. "Fracture Resistance of Cemented Total Joint Replacements: Effects of Sterilization, Mixing, Bone Density and Pressure," invited talk to the FDA Division of Mechanics and Materials Science, April 19, 2003.
35. "Fracture Resistance at the Bone-Implant Interface in Total Joint Replacement," invited talk presented to Exponent Inc. (engineering consulting firm), Philadelphia, PA, April 3, 2002.
36. "A History of Synthetic Heart Valve Designs," invited lecture presented to graduate biomaterials course, Department of Bioengineering, University of California, Berkeley, CA, March 17, 1999.

XII. PROFESSIONAL DEVELOPMENT

a. Recent Training Courses in Biostatistics

- *Machine Learning A-Z* with Kirill Eremenko, Delitte and Hadelin de Ponteves (Bluelife AI) (2021)
- *Deep Learning A-Z* with Kirill Eremenko, Delitte and Hadelin de Ponteves (Bluelife AI) (2021)
- *Fundamentals of ML for Healthcare* with Matthew Lungren and Tina Hernandez-Boussard, Stanford University (2021)
- *Evaluations of AI Applications in Healthcare* with Matthew Lungren and Tina Hernandez-Boussard, Stanford University (2021)
- *AI in Healthcare Capstone* with Matthew Lungren and Tina Hernandez-Boussard, Stanford University (2021)
- *Python Basics for Data Science* with IBM/edX (2021)

- *SQL for Data Science* with IBM/edX (2021)
- *Explore Statistics with R* with Andreas Montelius, Karolinska Institutet (2014)
- *Data Analysis for Genomics* with Rafael A. Irizarry, Harvard University (2014)
- *Longitudinal Data Analysis* with Michael E. Griswold, University of Mississippi Medical Center (2013)
- *Biostatistical Analysis of Epidemiologic Data: Logistic and Poisson Regression* with Steve Selvin, University of California-Berkeley (2013)
- *Multilevel Modeling* with Sandra Eckel, University of Southern California (2011)
- *Biostatistical Analysis of Epidemiologic Data: Semiparametric Methods* with Steve Selvin, University of California-Berkeley (2011)
- *Propensity Score Methods for Estimating Treatment Effects in Observational Studies* with Peter C. Austin, University of Toronto (2010)
- *Intent-to-Treat Analysis and Missing Data Issues* with Chul Ahn, Food and Drug Administration (2006)
- *Basic Concepts of Statistical Inference for Causal Effects in Experiments and Observational Studies* with Donald B. Rubin, Harvard University (2003)

b. Recent Conferences Attended

- American College of Cardiology Conference (virtual) (2022)
- EU-ISPOR (Professional Society for Health Economics and Outcomes Research) (virtual) (2021)
- Osteoarthritis Research Society International (virtual) (2021)
- International Society for Pharmacoepidemiology Research (2018)
- Health Care Systems Research Network Annual Meeting (2018, 2019)
- Supply Chain Advancement Network in Health Global Summit (2017, 2018, 2019)
- Canadian Agency for Drugs and Technology in Health (CADTH) Symposium (2016)
- AcademyHealth Annual Meeting (2011, 2013, 2014)
- ASTM F04 Medical Materials and Devices Committee Biannual Meetings (2004-2019)
- GS1 Connect Global Standards Annual Conference (2014)
- AHRQ Comparative Effectiveness Research Methods Symposium (2009)
- HMO Research Network Conference (2009, 2013)
- American Heart Association Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke Conference (2008)
- American Urology Association Annual Meeting (2008)
- IEEE/EMBS Annual International Conference (2006)
- Orthopaedic Research Society Annual Meeting (2004-2006)
- American Academy of Orthopaedic Surgeons Annual Meeting (2004-2006)
- Federation of Spine Associations Annual Specialty Day Meeting (2004-2006)
- NIH Consensus Development Conference on Total Knee Replacement (December 2003)
- FDA Science Forum, Washington, DC (2004-2006)
- Biomedical Engineering Materials and Applications Roundtable Workshop (2006)

c. Training Courses in Other Topics

- *Overview of AHRQ's Medical Effectiveness Research Initiatives* (2006)
- *Nitinol in Medical Devices* (2005)
- *Finite Element Analysis in Cardiovascular Devices* (2004)
- *Fine-tuning the Medical Device Product Review Process* (2004)
- *Joint Arthroplasty 2004: Issues that Confront Us* (2004)
- *Australian Regulation of Medical Devices, Cellular and Tissue Therapies* (2003)
- *Introduction to Food and Drug Law* (2003)