Name: **Jeremy L. Warner MD, MS**

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Education:

- Massachusetts Institute of Technology, Cambridge, Massachusetts, BS, 1999, Electrical Engineering
- University of California, San Diego, La Jolla, California, MS, 2001, Thesis: A System for Configurable Multivariate Flow Cytometry
- Boston University School of Medicine, Boston, Massachusetts, MD, 2005
- Internship in Internal Medicine, University of California, San Francisco, San Francisco, California, June 2005 to June 2006
- Residency in Internal Medicine, University of California, San Francisco, San Francisco, California, July 2006 to June 2008, Program in Residency Investigation Methods and Epidemiology Track
- Fellowship in Hematology and Oncology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts, July 2009 to June 2012

Licensure and Certification:

- California: 2006 to 2009, Jeremy Lyle Warner, #A97780 (inactive)
- Massachusetts: 2009 to 2012, Jeremy L. Warner, #239040 (inactive)
- Tennessee: 2012 to present, Jeremy Lyle Warner, #48754
- American Board of Internal Medicine, Internal Medicine, 2008 to 2018, #295978
- American Board of Internal Medicine, Hematology, 2012 to 2022, #295978
- American Board of Internal Medicine, Medical Oncology, 2012 to 2022, #295978
- American Board of Preventive Medicine, Clinical Informatics, 2017 to 2027, #072904

Academic Appointments:

- Clinical Instructor, Department of Medicine, Division of Hospital Medicine, Hematologic Malignancy, University of California, San Francisco, July 2008 to June 2009

- Assistant Professor, Department of Medicine, Division of Hematology & Oncology, Vanderbilt University, August 2012 to August 2017

- Assistant Professor, Department of Biomedical Informatics, Vanderbilt University, August 2012 to August 2017

- Visiting Scientist, Broad Institute, December 2016 to present

- Associate Professor, Department of Medicine, Division of Hematology & Oncology, Vanderbilt University, September 2017 to present

- Associate Professor, Department of Biomedical Informatics, Vanderbilt University, September 2017 to present

Hospital Appointments:

- University of California, San Francisco Medical Center, July 2008 to June 2009

- Vanderbilt University Medical Center, August 2012 to present

- U.S. Department of Veterans Affairs, Tennessee Valley Healthcare System, Nashville Campus, March 2013 to December 2014

Professional Organizations:

- Alpha Omega Alpha Honor Medical Society (AOA)
- American Medical Informatics Association (AMIA)
    - Member, CIS Board Exam Prep Program Item Writing Committee, 2012-2013
    - Visual Analytics Working Group, 2015 to present
        - Chair-elect, 2017
    - Member, Natural Language Processing Working Group, 2016 to present
    - Vice-Chair, 2017 AMIA Policy Invitational Planning Committee
    - Member, 2018 Annual Meeting Scientific Program Committee
- American Society of Clinical Oncology (ASCO)
    - Health Information Technology Work Group, 2011-2017 (Work Group dissolved)
        - Chair, 2013-2016
        - Immediate past-Chair, 2016-2017
    - Member, Quality of Care Committee, 2013-2016
    - Liaison, College of American Pathologists Structured Reporting (PERT) Committee, 2015 to present
    - Member, CancerLinQ Data Analytics Committee, 2016 to present
    - Cancer Education Committee, 2016 to present
        - Track leader-elect, Health Services Research, Clinical Informatics, and Quality of Care, 2016-2017
        - Track leader, Health Services Research, Clinical Informatics, and Quality of Care, 2017-2018
    - Inaugural member, CancerLinQ Oncology Informatics Task Force, 2017-2020

    - Member, Quality Care Symposium Planning Committee, 2017-2020
- American Society of Hematology (ASH)
- Health Level Seven International (HL7)
    - Member, ASCO Advisory Work Group for the HL7 Implementation Guide for CDA, Release 2®: Clinical Oncology Treatment Plan and Summary, DSTU Release 1
    - Member, ASCO Advisory Work Group for the HL7 Implementation Guide for CDA, Release 2®: Clinical Oncology Treatment Plan and Summary, DSTU Release 2
    - Member, ASCO Advisory Work Group for the HL7 Implementation Guide for CDA, Release 2®: Clinical Oncology Treatment Plan and Summary, DSTU Release 3
    - Member, Clinical Genomics Work Group
    - Member, Learning Health Systems Work Group
- Massachusetts Medical Society
- Tennessee Oncology Practice Society

Professional Activities:

Intramural:

- BUSM Medical Students for Environmental Awareness, President, 2002-2003
- BUSM Clinical Neuroscience Society, President, 2002-2003
- BIDMC Hematology/Oncology Weekly Tumor Board, Organizer, 2010-2011
- BIDMC Quality Oncology Practice Initiative (QOPI) Certification Committee, Co-Chair, 2011-2012
- BIDMC Hematology/Oncology Patient Safety Committee, Member, 2011-2012
- Vanderbilt Oncology Information System (VOIS) Steering Committee, Member, 2012-2013
- Vanderbilt-Ingram Cancer Center (VICC) Quality Council, Member, 2013 to 2014
- Vanderbilt BioVU Review Committee, Member, 2013 to present
    - Member, Whole Genome Sequencing Work Group, 2016 to present
- Vanderbilt Clinical & Translational Cancer Informatics Journal Club, Co-founder
    - Organizer, 2013 to 2015
- VICC Cancer Committee, Member, 2015 to present
- Vanderbilt University Office of Medical Student Research, Research co-Director, Epidemiology and Informatics Research, 2015 to present
- Member, Vanderbilt Center for Precision Medicine, 2015 to present
- Medical Director, Vanderbilt Cancer Registry, 2015 to present
- Vanderbilt University Master's Program in Applied Clinical Informatics (MSACI) co-Director, Clinical Information Systems course (ACI 6121), 2015 to present
- VICC Oncology Care Model Metrics & Measurements Work Group, Co-Chair, 2016 to present
- Medical Director, Vanderbilt SCT Data Analysis Team, 2017 to present

Extramural:

- Cancer Informatics for Cancer Centers (CI4CC), Member, 2012 to present
- BMT Data Management and Informatics Roundtable, Member, 2012 to present
- American Joint Committee on Cancer (AJCC), Member representing ASCO, 2013-2016
- AMIA Summit of Translational Bioinformatics, Session Chair - 2 sessions, 2014
- The Third ASE International Conference on Biomedical Computing (BioMedCom), Member of Program Committee, 2014
- ASCO Standards Summit, Member of Planning Committee, 2014
- IEEE International Conference on Healthcare Informatics (ICHI), Member of Program Committee (2015, 2016)

- Masonic Cancer Center, University of Minnesota's Oncology Medical Informatics Service, Member of External Advisory Board (OMIS-EAB), 2016
- ASCO Oncology Standards and Interoperability Summit, Co-Chair of Planning Committee, 2016
- AMIA Workshop on Visual Analytics in Healthcare, Member of Planning Committee, 2016
- Pacific Symposium on Biocomputing, Member of Program Committee (2017, 2018)
- ASCO Omics and Precision Oncology (OPO) Workshop, Co-Chair of Planning Committee, 2016
- ASCO Advancing Interoperability Workshop, Member of Planning Committee, 2016
- Precision Medicine Initiative Electronic Health Records (EHR) working group, Member, 2016 to present
    - Domains External to the EHR subgroup, Member, 2016 to present
- IEEE VIS 2017 Workshop on Visual Analytics in Healthcare, co-Chair of Planning Committee, 2017

Other Professional Activities:

Editorial:

- *Journal of Oncology Practice*, Member of Editorial Board, 2014 to present
- *JCO Clinical Cancer Informatics*, Founding Associate Editor, 2016 to present
- **HemOnc.org**, Founding Deputy Editor, 2016 to present (prev. Section Editor, Hematologic Malignancy, 2012-2016)
- Section co-editor, "Cancer Informatics" for the 2018 International Medical Informatics Association (IMIA) Yearbook

Review:

- Society of Medical Decision Making Annual Symposium: 2013, 2014
- MEDINFO Conference (International Medical Informatics Association): 2013, 2015, 2017
- American Medical Informatics Association Annual Symposium: 2014, 2015, 2016, 2017
- American Medical Informatics Association Joint Summits of Translational Bioinformatics and Clinical Research Informatics: 2014, 2015, 2016, 2017
- *Applied Clinical Informatics*
- *BMC Medical Informatics & Decision Making*
- *Bone Marrow Transplantation*
- *Clinical and Translational Science*
- *Genome Medicine*
- *Health Affairs*
- *International Journal of Medical Informatics*
- *JAMA*
- *JCO Clinical Cancer Informatics*
- *JCO Precision Oncology*
- *Journal of Clinical Oncology*
- *Journal of Medical Systems*
- *Journal of Oncology Practice*
- *Journal of the American Medical Informatics Association*

Special Awards, Honors, Recognition:

- Pathology Chairs Honor Society (BUSM), 2002
- Completion of the Clinical Neuroscience Society Pathway (BUSM), 2004
- Alpha Omega Alpha, 2004
- Finalist, American College of Physicians Clinical Vignette Competition, 2005
- Chester S. Keefer Scholarship (BUSM), 2005

- Tauber Family Scholarship (BUSM), 2005
- Travel Award, National Comprehensive Cancer Network (NCCN), 2010
- Travel Award, American Society of Clinical Oncology Conquer Cancer Foundation, 2011
- Prize Winner, Harvard Catalyst SHRINE Query Prize Competition, 2012
- Initial Award Recipient, National Institutes of Health (NIH) Loan Repayment Program, 2012
    - Renewal Award, 2014
    - Renewal Award, 2015
    - Renewal Award, 2016
- Second Place, American Medical Informatics Association Student Paper Competition, 2012
- First Prize, Fast Health Interoperability Resources (FHIR) Connectathon 7, 2014
- Xu et al. 2015 (#20, Peer-reviewed Publications) featured as "paper of the month" at the AMIA journal club and included as one of the most important informatics papers of the year at the 2015 AMIA Translational Bioinformatics Year in Review and the 2015 AMIA Clinical Research Informatics Year in Review
- Warner et al. 2015 (#22, Peer-reviewed Publications) featured as "paper of the month" at the AMIA journal club and called out in the 2016 President's Cancer Panel report, "Improving Cancer-Related Outcomes with Connected Health" https://prescancerpanel.cancer.gov/report/connectedhealth/
- Alterovitz/Warner/Zhang et al. 2015 (#26, Peer-reviewed Publications) included as one of the most important informatics papers of the year at the AMIA 2015 Year in Review
- Warner et al. 2016 (#34, Peer-reviewed Publications) included as one of the most important informatics papers of the year at the 2017 AMIA Translational Bioinformatics Year in Review
- Warner et al. 2016 (#35, Peer-reviewed Publications) recognized/cited in the 2016 President's Cancer Panel report, "Improving Cancer-Related Outcomes with Connected Health"; included as one of the most important informatics papers of the year at the 2017 AMIA Translational Bioinformatics Year in Review; selected as one of the top 5 Health Information Management articles by the IMIA Yearbook of Medical Informatics 2017
- Prize Winner, Harvard Catalyst "Good Questions Meet Big Data" Ideation Challenge, 2017

Teaching Activities:
Medical School Courses:

- BUSM Epidemiology Series, "To Scan or Not to Scan: Difficult Mammogram Decisions", 2003
- Vanderbilt University Medical School Diagnostics & Therapeutics Bootcamp, "Diagnostic laboratory tools – CBC – white blood cell (WBC) count", 2013
- Vanderbilt University Medical School Diagnostics and Therapeutics Course, Small Group Facilitator, 8 meetings per year, 2013-2014
- Teaching of medical students on the inpatient malignant hematology service (2-4 weeks per year), 2014-present

Graduate School and Postdoctoral Training Courses:

- Boston University Graduate Medical Sciences, "Chelation Therapy", 2002
- UCSF PRIME Epidemiology Seminar, "Uncertainty, Confusion, and Classification: Moving Beyond the 2 x 2 Table", 2007
- UCSF PRIME Epidemiology Seminar, "Clinical Test Selection Strategy", 2007
- Vanderbilt University Department of Biomedical Informatics Summer Seminar Series, "Leveraging EHR Data and Knowledge Bases to Enable Cancer Informatics", 2014
- Teaching of hematology/oncology fellows on the inpatient malignant hematology and benign hematology services (2-6 weeks per year), 2012-present

- Teaching of internal medicine residents on the inpatient malignant hematology service (2-4 weeks per year), 2012-present
- Vanderbilt University Department of Biomedical Informatics BMIF 6300 (Introduction to Biomedical Informatics): Standards Laboratory (4 sessions), 2015-2016
- Vanderbilt University Department of Biomedical Informatics ACI 6221 (Clinical Information Systems): lectures (12 sessions per year), 2017-present

Continuing Medical Education:

- Vanderbilt Division of Hematology/Oncology Special Lecture, "The future of observational data in oncology", lecturer, December 2, 2011
- Vanderbilt Division of Hematology/Oncology Core Curriculum Seminar, "Indolent lymphomas", lecturer, January 20, 2013, January 21, 2014, March 3, 2015, March 8, 2016
- Vanderbilt Department of Biomedical Informatics Seminar
    - "AMIA Key Learnings – Visual Analytics", panel member, December 3, 2013
    - "Creating, maintaining, and leveraging knowledge bases: The HemOnc.org experience", lecturer, February 19, 2014
    - "The expanding role of interoperability standards in oncology", lecturer, March 18, 2015
    - "Bringing genomic knowledge to the masses: leveraging emerging clinical genomic standards for cancer care", lecturer, October 11, 2017
- Vanderbilt Department of Medicine Grand Rounds, "How electronic data and visual analytics can enable rapid learning for cancer care", lecturer, April 3, 2014
- ASCO Annual Meeting Education Sessions
    - "Why we need electronic health records: the evolution and overview", lecturer, May 31, 2014
    - "Advances in website information resources to aid in clinical practice", session chair, May 30, 2015
    - "More Medicine, Fewer Clicks: How Informatics Can Actually Help Your Practice", session chair, June 5, 2017
- National Library of Medicine Georgia Biomedical Informatics Course, faculty lecturer
    - "Electronic health records and CPOE", April 17, 2015; April 5, 2016
    - "Electronic health records, application programming interfaces, and apps", September 14, 2016
    - "EHRs, APIs, and apps", April 4, 2017; September 15, 2017
- Chemotherapy Foundation Symposium, "Update on ASCO Health IT Ventures", faculty lecturer, November 5, 2015 (invited)
- *Journal of Clinical Oncology* Podcast, "Web-Based Technology Can Improve Patient Understanding and Preparedness to Discuss Cancer Clinical Trials: One Step Towards a Goal of Increased Enrollment", http://jco.ascopubs.org/content/34/5/469/suppl/DC3.
- Harvard B3D Seminar Series, "Grappling with complexity: integration of genomics and external knowledge into the oncology workflow", lecturer, February 27, 2017

Clinical Teaching Activities:
Research Supervision:

High School Students:
- MIT PRIMES: Andrew Xia, 2012, current position: undergraduate, Massachusetts Institute of Technology
- MIT PRIMES: Peijin Zhang BS, 2012-2015, current position: algorithmic trader at Jump Trading LLC
- MIT Research Science Institute (RSI) Summer Program: Michael Gao, 2013, current position: Cofounder and CEO, AlphaSheets

    - Siemens award finalist for supervised work
- Vanderbilt University Internship: Youssef Doss, 2015-2016, current position: undergraduate, Yale University
- MIT PRIMES: Clive Chan, 2016, current position: undergraduate, University of Waterloo
- Vanderbilt University DBMI Summer Internship: Andrew Malty, 2016 & 2017, current position: undergraduate, Stanford University

Undergraduate Students:
- MIT: Jenny Liu MS, 2013-2015, current position: product manager, Apple
- University of Science and Technology of China: Shilin Zhu BS, 2015, current position: graduate student, University of California, San Diego
- University of Science and Technology of China: Heming Yao, 2015, current position: graduate student, University of Michigan
- Vanderbilt University DBMI Summer Internship & ongoing: Krysten Harvey, 2016 to present
- Vanderbilt University DBMI Summer Internship: Monica Arniella, 2017, current position: undergraduate student, Duke University

Medical Students:
- Vanderbilt University School of Medicine: Vanessa Kennedy MD, 2015-2016, current position: resident physician, Stanford Health Care
- Vanderbilt University School of Medicine: Sandeep Jain, 2016 to present
    - Recipient of Medical Scholars Program award for supervised work
- Vanderbilt University School of Medicine: Xuanyi (Lexi) Li, 2017 to present

Graduate Students:
- Vanderbilt University DBMI: Matt Rioth MD, MS, 2013-2016, current position: Director of Clinical Cancer Informatics and Assistant Professor of Medicine and Biomedical Informatics and Personalized Medicine at University of Colorado Anschutz Medical Campus
    - Received VICTR award for supervised work
    - Received two ASCO merit awards and Vanderbilt graduate student travel award for supervised work
    - Recipient of NIH Loan Repayment Program initial award for supervised work
    - Recipient of 2016 ASCO Young Investigator Award while under supervision
    - MS Thesis: "Operationalizing tumor molecular profile reporting in clinical workflows and for translational discovery" (May 2016)
- Vanderbilt University DBMI (member of MS committee): Lina Suleiman MS, 2013-2014, current position: graduate student and PhD candidate, Vanderbilt University
- Vanderbilt University DBMI (member of PhD committee): Robert Carroll PhD, 2014-2015, current position: Research Assistant Professor of Biomedical Informatics at Vanderbilt University
- Harvard DBMI (away rotation): Jake Conway, 2017, current position: graduate student, Harvard Medical School
- Vanderbilt University DBMI (member of PhD committee): Zhijun Yin, 2017 to present, current position: graduate student, Vanderbilt University

Residents:
- VUMC Internal Medicine: Julie Wu MD, PhD, 2016 to present

Fellows:
- VUMC Hematology/Oncology: Matt Rioth MD, MS, 2013-2016 (see above)

- VUMC Hematology/Oncology: Travis Osterman DO, MS, 2014-2015, current position: Instructor of Biomedical Informatics and Medicine at Vanderbilt University
- VUMC Hematology/Oncology: James Pauff MD, PhD, 2015-2016, current position: Associate Medical Director at AbbVie
- VUMC Hematology/Oncology: Ben Tillman MD, 2016 to present
- VUMC Hematology/Oncology: Samuel Rubinstein MD, 2016 to present

Postdoctoral Trainees:

- BIDMC Postdoctoral Trainee: Jessica Zerillo MD, MPH 2013-2015, current position: Director of Quality and Instructor in Medicine at BIDMC, Harvard Medical School

Other Significant Activities:

- **HemOnc.org LLC**, co-founder, 2017. HemOnc.org is a collaborative wiki to share information about chemotherapy regimens, drugs, and other cancer-specific information that was initially created by Dr. Peter Yang in 2011. The website has more than 2,900 fully referenced chemotherapy regimens listed, and has had visitors from over 200 countries, with over 1,000 visitors from each of 44 countries. HemOnc.org has been covered by the lay and academic media and a list of publications & presentations can be found here: http://bit.ly/2ktXyzV. In June 2017, the content of HemOnc.org was transferred to HemOnc.org LLC.
- **SMART Precision Cancer Medicine (PCM)**, Chief Software Architect, 2014 to present. SMART PCM is a prototype SMART on FHIR app that is designed to bring context-specific genomic information to the point of care, initially for clinicians but also intended to be an interface to patient-centered care. The app is available on the SMART App Gallery (https://gallery.smarthealthit.org/vanderbilt-university-medical-center/smart-precision-cancer-medicine). I led the design and implementation of SMART PCM as part of an Interoperability Demonstration at the 2015 ASCO Annual Meeting. This demonstration is available as a video (http://bcove.me/q92f13n9) and described in the published manuscript "Data sharing to support the cancer journey in the digital era" (Krauss et al. 2016, #29, peer-reviewed publications). SMART PCM was cited in the 2016 President's Cancer Panel report and was recently noted to be one of the "7 best SMART on FHIR apps."

Research Program:

Overall Goal: My overall goal is to advance the field of clinical and translational cancer informatics through the use of advanced computational technologies. In particular, to obtain information from structured as well as traditionally inaccessible areas of the medical record and ancillary data sources, such as narrative text. Knowledge gained from these endeavors can lead to the development of new benchmarks, new hypotheses, and metrics to measure the quality of healthcare delivery in oncology.

Grants and Contracts:

Active

1. Title: From GWAS to PheWAS: Scanning the EMR Phenome for Gene-Disease Associations
   Identification Number: 2 R01 LM 010685
   Sponsor: National Library of Medicine
   Dates: 9/1/2014-8/31/2018
   Total Cost (Estimated): $2,082,666
   Percent Effort: 10%
   Principal Investigator: Joshua C. Denny, MD, MS

2. Title: Vanderbilt-Ingram Cancer Center Support Grant

Identification Number: 5 P30 CA 068485
Sponsor: National Cancer Institute
Dates: 9/01/2015-8/31/2020
Total Cost: $29,000,000 (estimated)
Percent Effort: 5%
Principal Investigator: Jennifer Pietenpol, PhD
My Role: Co-Investigator, Informatics Support

3. Title: BIDS: Vanderbilt Training Program in BIg Biomedical Data Science
Identification Number: 1 T32 LM 012412
Sponsor: National Library of Medicine
Dates: 4/01/2016-3/31/2021
Percent Effort: N/A
Principal Investigators: Brad Malin, PhD; Jeffrey Blume, PhD; Cindy Gadd, PhD, MBA
My Role: Mentor/Preceptor

4. Title: Precision Medicine Initiative Data and Research Support Core (DRC)
Identification Number: 1 U2C OD 023196
Sponsor: National Institutes of Health
Dates: 7/6/2016-6/30/2021
Total Cost: $11,131,794 (direct only, to VUMC)
Percent Effort: 25% in year 1, 40% in years 2-5
Principal Investigator: Joshua C. Denny, MD, MS
My Role: Co-Investigator

5. Title: Advancing Cancer Pharmacoepidemiology Research through EHRs and Informatics
Identification Number: 1 U24 CA 194215
Sponsor: National Cancer Institute
Dates: 9/1/2016-8/30/2021
Total Cost: $2,000,000 ($720,000 to Vanderbilt University site)
Percent Effort: 10% in year 1, 15% in years 2-5
Principal Investigator: Hua Xu, PhD; Jeremy L. Warner, MD, MS; Ping Yang, PhD
My Role: Co-PI (effective 1/1/2018)

6. Title: Sync for Genes
Sponsor: Office of the National Coordinator of Health Information Technology
Dates: 1/24/2017-12/31/2017
Total Cost: undisclosed
Percent Effort: unpaid consultant
Principal Investigator: Gil Alterovitz, PhD
My Role: Site PI, Vanderbilt University Medical Center

7. Title: Exploring Statin Pleiotropic Effects within a Very Large EHR Cohort
Identification Number: 1 R01 HL 133786
Sponsor: National Heart, Lung, and Blood Institute
Dates: 4/1/2017-2/28/2021
Total Cost: $257,040
Percent Effort: 10%
Principal Investigator: Wei-Qi Wei, PhD

My Role: Co-Investigator

8. Title: Vanderbilt Biomedical Informatics Training Program
Identification Number: 4 T15 LM 012412
Sponsor: National Library of Medicine
Dates: 7/01/2017-6/30/2022
Percent Effort: N/A
Principal Investigators: Brad Malin, PhD; Cindy Gadd, PhD, MBA; Gretchen Jackson MD, PhD
My Role: Mentor/Preceptor

9. Title: Cancer Deep Phenotype Extraction from Electronic Medical Records
Identification Number: 1 U24 CA 184407 (subaward: GENFD0001345337)
Sponsor: National Cancer Institute
Dates: 9/20/2017-4/30/2019
Percent effort: 15%
Principal Investigator: Guergana K. Savova, PhD
My Role: site PI

10. Title: Network Analysis for a Data-Driven Approach to Cancer Care
Identification Number: 1 R01 CA 221922
Sponsor: National Cancer Institute
Dates: pending (percentile score: 15%)
Total Cost: $1,231,772
Percent Effort: 20%
My Role: Principal Investigator

Completed

1. Title: Optical Detection of DNA Single Nucleotide Polymorphisms
Identification Number: N/A
Sponsor: National Institutes of Health Training Grant
Total Direct Cost: $6,000
Dates: 7/01/1996-6/30/1997
Percent Effort: 20%
Principal Investigator: Leonard Lerman PhD
My Role: Project design and construction, data analysis

2. Title: A System for Configurable Multivariate Flow Cytometry
Identification Number: N/A
Sponsor: UCSD Focht-Powell Graduate Training Grant
Total Direct Cost: $48,000
Dates: 8/01/1999-8/31/2001
Percent Effort: 75%
Principal Investigator: Sadik Esener PhD
My Role: Project design, data generation, data analysis

3. Title: Automated Neuroanatomical Segmentation Tool
Identification Number: Student Scholarship in Cerebrovascular Disease
Sponsor: American Stroke Association
Dates: 6/15/2002-9/15/2002

Total Direct Cost: $2,000
Percent Effort: 100%
Principal Investigator: Mark Moss PhD
My Role: System evaluation, data generation

4. Title: A Holistic Approach to Information Processing for Biomedical Networks
Identification Number: 1 R00 LM 009826
Sponsor: National Library of Medicine
Dates: 1/01/2012-9/29/2014
Total Cost: $990,303
Percent Effort: Unpaid consultant
Principal Investigator: Gil Alterovitz PhD
My Role: Project design, data analysis

5. Title: Innovation Platform for Substitutable Apps with Access to Networked Healthcare Data
Identification Number: 90TR0001/01
Sponsor: Office of the National Coordinator of Health Information Technology
Dates: 10/15/2013-9/30/2014
Total Cost: $15,000,000 ($51,797 to Vanderbilt University subaward)
Percent Effort: 6%
Principal Investigator: Isaac S. Kohane, MD, PhD
My Role: Subaward Principal Investigator

6. Title: SMART Precision Cancer Medicine
Sponsor: T.J. Martell Foundation
Dates: 2/3/2015-6/30/2015
Total Cost: $8,400
Percent Effort: Unpaid consultant
My Role: Principal Investigator

7. Title: Enhancing Regional Infrastructures for Early Case Capture of Pediatric and Young Adult Cancer Cases
Identification Number: 5 U58 DP 003816
Sponsor: Centers for Disease Control and Prevention
Dates: 10/1/2014-9/30/2015
Total Cost: $309,206 ($15,000 to Vanderbilt University subaward)
Percent Effort: Unpaid consultant
Principal Investigator: Eric B. Durbin, MS
My Role: Subaward Principal Investigator

8. Title: Mid-South Clinical Data Research Network
Identification Number: CDRN-1306-04869
Sponsor: Patient-Centered Outcomes Research Institute
Dates: 9/12/2015-7/12/2016
Total Cost: $75,000 (urology program subcontract)
Percent Effort: 1%
Principal Investigator: Russell L. Rothman, MD, MPP
My Role: Subrecipient Co-Investigator

9. Title: Information Extraction from Oncology Patient Electronic Health Records
Identification Number: L30 CA 171123
Sponsor: National Cancer Institute (NIH Loan Repayment Program)
Dates: 7/01/12-6/30/17
Total Cost: N/A (loan repayment)
Percent Effort: 30%

Publications and Presentations:

Articles in refereed journals and conference proceedings:
*** - contributed equally**

1. Wisco JJ, Rosene DL, Killiany RJ, Moss MB, Warfield SK, Egorova S, Wu Y, Liptak Z, Warner J, Guttmann CR. A rhesus monkey reference label atlas for template driven segmentation. *Journal of Medical Primatology*. 2008 Oct;37(5):250-60. PubMed PMID: 18466282; PubMed Central PMCID: PMC2724263.
2. Warner JL, Najarian RM, Tierney LM Jr. Perspective: Uses and misuses of thresholds in diagnostic decision making. *Academic Medicine*. 2010 Mar;85(3):556-63. PubMed PMID: 20182138
    a. **Editorial:** Norman G. Commentary: Breaking the mold of normative clinical decision making: Is it adaptive, suboptimal, or somewhere in between? *Academic Medicine*. 2010 Mar;85(3):393-4. PubMed PMID: 20182107
3. Yeo WL, Riley GJ, Yeap BY, Lau MW, Warner JL, Bodio K, Huberman MS, Kris MG, Tenen DG, Pao W, Kobayashi S, Costa DB. Erlotinib at a dose of 25mg daily for non-small cell lung cancers with EGFR mutations. *Journal of Thoracic Oncology*. 2010 Jul;5(7):1048-53. PubMed PMID: 20512075; PubMed Central PMCID: PMC2893286.
4. Britt GJ, Gaughan EM, Nguyen KH, Warner JL, Goldstein MA, Huberman MS, Costa DB. Case series of treatment approaches in fit nonagenarians with stage IV non-small-cell lung cancer. *Journal of Thoracic Disease*. 2011 Jun;3(2):141-3. PubMed PMID: 22263078; PubMed Central PMCID: PMC3256509.
5. Warner JL, Anick P, Hong P, Xue N. Natural language processing and the oncologic history: Is there a match? *Journal of Oncology Practice*. 2011 Jul;7(4):e15-9. PubMed PMID: 22043196; PubMed Central PMCID: PMC3140455.
6. Selby KJ, Warner JL, Klempner S, Konstantinopoulos PA, Hecht JL. Anti-yo antibody associated with occult fallopian tube carcinoma. *International Journal of Gynecologic Pathology*. 2011 Nov;30(6):536-8. PubMed PMID: 21979588.
7. Warner JL, Hochberg EP. Where is the EHR in oncology? *Journal of the National Comprehensive Cancer Network*. 2012 May;10(5):584-8. PubMed PMID: 22570289.
8. Warner JL, Alterovitz G. Phenome based analysis as a means for discovering context dependent clinical reference ranges. *American Medical Informatics Association Annual Symposium Proceedings 2012*; 2012:1441-9. PubMed PMID: 23304424; PubMed Central PMCID: PMC3540498.
9. Warner JL, Arnason JE. Alemtuzumab use in relapsed and refractory chronic lymphocytic leukemia: A history and discussion of future rational use. *Therapeutic Advances in Hematology*. 2012 Dec;3(6):375-89. PubMed PMID: 23606939; PubMed Central PMCID: PMC3627326.
10. Warner JL, Alterovitz G, Bodio K, Joyce RM. External phenome analysis enables a rational federated query strategy to detect changing rates of treatment-related complications associated with multiple myeloma. *Journal of the American Medical Informatics Association*. 2013 Jul-Aug;20(4):696-9. PubMed PMID: 23515788; PubMed Central PMCID: PMC3721159.
11. Warner JL, Anick P, Drews RE. Physician inter-annotator agreement in the Quality Oncology Practice Initiative manual abstraction task. *Journal of Oncology Practice*. 2013 May;9(3):e96-102. PubMed PMID: 23942509; PubMed Central PMCID: PMC3651579.

12. Warner JL, Zollanvari A, Ding Q, Zhang P, Snyder GM, Alterovitz G. Temporal phenome analysis of a large electronic health record cohort enables identification of hospital-acquired complications. *Journal of the American Medical Informatics Association*. 2013 Dec;20(e2):e281-7. PubMed PMID: 23907284; PubMed Central PMCID: PMC3861919.
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14. Warner J**,** Denny J, Kreda D, Alterovitz G. Analytic approaches to phenotypic complexity. *Studies in Health Technology & Informatics*. 2013;192:1267.
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3. Warner JL. A novel program for graphic representation of binary test likelihoods and expectations in the two hypothesis case. Poster Session, American College of Physicians California Regional Conference 2007.
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41. Jain SK, Rahimian M, Zerillo JA, Joyce RM, Warner JL. Using network graphs to visualize changing documentation styles in an oncology practice before and after OpenNotes implementation. The 17th Annual Retreat for Cancer Research, Vanderbilt University 2017 (abstract #12)
42. Rubinstein S, Warner JL. Oncology papers with marginally significant results often fail to express uncertainty. The 17th Annual Retreat for Cancer Research, Vanderbilt University 2017 (abstract #26)
43. Bhavnani SK, Ayyaswamy A, Chen T, Warner JL. Identification of patient subgroups in metastatic breast cancer patients based on somatic copy number alterations: A bipartite network analysis. AMIA Annual Symposium 2017 (abstract #28)
44. Tillman B, Pauff JM, Satyanarayana G, Talbott MS, Warner J. Systematic review of infection events in prospective trials of ibrutinib. ASH Annual Meeting 2017 (abstract #3460)
45. Mendoza KA, Chen H, Engelhardt BG, Savani BN, Goodman SA, Warner JL, Kassim AA, Byrne M, Chinratanalab W, Greer JP, Hunt C, Jagasia M. Similar outcomes of early failure steroid dependent acute GvHD and upfront steroid refractory acute GvHD: Implications on clinical trials. ASH Annual Meeting 2017 (abstract #1975)
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47. Campbell BR, Sanders CB, Netterville JL, Sinard RJ, Rohde SL, Langerman AJ, Mannion K, Kim YJ, Murphy BA, Lewis JS, Warner JL, Smith DK, Lang Kuhs KA. Factors associated with the development of early onset oral tongue cancer. Poster Presentation at the American Society of Preventive Oncology Annual Meeting, New York, NY March 10-13, 2018

Presentations at Scientific Meetings:

1. "The role of natural language processing in oncology." March 1, 2012, Massachusetts General Hospital Program in Cancer Outcomes Research Training Seminar Series, Boston, Massachusetts (Invited)
2. "The rapid learning system: prospects and challenges." March 10, 2012, BIDMC Division of Hematology/Oncology Annual Retreat, Dedham, Massachusetts (Invited)
3. "Phenome-based analysis as a means for discovering context-dependent clinical reference ranges." AMIA 2012 Annual Symposium Student Paper Competition, Chicago, Illinois (Peer-reviewed)
4. "Phenome-based analysis as a means for discovering context-dependent clinical reference ranges." AMIA 2012 Annual Symposium, Chicago, Illinois (Peer-reviewed)
5. "Scientific Demonstration: Analytic approaches to phenotypic complexity." August 21, 2013, the 14th World Congress on Medical and Health Informatics (MEDINFO), Copenhagen, Denmark (Peer-reviewed)
6. "Automated synthesis and visualization of a chemotherapy treatment regimen network." August 22, 2013, the 14th World Congress on Medical and Health Informatics (MEDINFO), Copenhagen, Denmark (Peer-reviewed)

7. "Cancer care through the lens of clinical genomics." Clinical Genomic Information Exchange: Taking Stock of Genomic Integration Efforts; September 27, 2013, Harvard Medical School Center for Biomedical Informatics, Boston, Massachusetts (Invited)
8. "Phenometric analysis of electronic health records: a new approach to visualization of high dimensional biomedical information." November 18, 2013, AMIA 2013 Annual Symposium, Washington, DC (Peer-reviewed)
9. "Sharing of genomic information: perspectives from stakeholders." November 19, 2013, AMIA 2013 Annual Symposium (Panel moderator, peer-reviewed)
10. Moderator, the Health Story Project. February 24-26 2014, HIMSS 2014 Annual Conference & Exhibition, Orlando, FL (Invited)
11. "On the Bayesian derivation of a treatment-based cancer ontology." March 10, 2014, AMIA 2014 Joint Summits of Translational and Clinical Informatics, San Francisco, CA (Peer-reviewed)
12. "Why we need electronic health records: the evolution and overview." May 31, 2014, ASCO 2014 Annual Meeting Education Session, Chicago, IL (Invited)
13. "Health Story at the HIMSS interoperability showcase." June 17, 2014, ASCO Oncology Standards Summit, Alexandria, VA (Invited)
14. "Incorporation of externally generated next-generation tumor genotyping into clinical and research workflows." July 15, 2014, ClinGen IT Standards Working Group, web-based (Invited)
15. SMART Genomics: Precision Cancer Medicine FHIR app demonstration, September 14, 2014, HL7 FHIR Connectathon 7, Chicago, IL (Competition)
16. "Automated extraction of date of cancer diagnosis from EMR data sources." November 15, 2014, AMIA Data Mining for Medical Informatics (DMMI) Workshop, Washington, DC (Peer-reviewed)
17. "Seeing the forest through the trees: Uncovering phenomic complexity through interactive network visualization." November 15, 2014, 5th Annual Workshop on Visual Analytics in Health Care, Washington, DC (Invited)
18. "Identifying site of recurrence from pathology reports in lung cancer patients." January 14, 2015 to the College of American Pathologists PERT Committee, virtual meeting (Invited)
19. "ASCO health information technology work group (HIT WG) update." February 9, 2015 to the College of American Pathologists PERT Committee, virtual meeting (Invited)
20. "Development, implementation, and initial evaluation of a foundational open interoperability standard for oncology treatment planning and summarization." March 5, 2015 to the AMIA Monthly Journal Club, virtual meeting (Invited)
21. "SMART Precision Cancer Medicine." April 24, 2015 to the HL7 Clinical Genomics Work Group, virtual meeting (Invited)
22. "Advances in website information resources to aid in clinical practice." May 30, 2015, ASCO 2015 Annual Meeting Education Session, Chicago, IL (Peer-reviewed; Session Chair)
23. "SMART Precision Cancer Medicine." June 1, 2015, ASCO 2015 Annual Meeting Interoperability Demonstration, Chicago, IL (Peer-reviewed)
24. "Leveraging new and emerging standards to improve the care of oncology patients." September 16, 2015, UTHealth School of Biomedical Informatics Research Seminar, Houston, TX (Invited)
25. "NLP and precision oncology – the VUMC experience." October 8, 2015, NCI SEER Workshop on Natural Language Processing, Bethesda, MD (Invited)
26. "Classification of hospital-acquired complications using temporal clinical information from MIMIC II." October 13, 2015, MIT MIMIC II Laboratory Meeting, Cambridge, MA (Invited)
27. "Update on ASCO Health IT ventures." 33rd Annual Chemotherapy Foundation Symposium, November 5, 2015, New York, NY (Invited)
28. "ASCO's Health IT WG and interoperability standards." December 22nd, 2015, FORDS Revision Project Steering Committee Webinar, Commission on Cancer, virtual meeting (Invited)

29. "Clinical genomics apps via FHIR: from design to development." January 14th, 2016, tutorial given at HL7 January 2016 Working Group Meeting, Orlando, FL (Peer-reviewed)
30. "ASCO's HL7 Clinical Oncology Treatment Plan and Summary (COTPS) winter 2016 ballot reconciliation @ SDWG: lesion organizer." January 14, 2016, the HL7 January 2016 Working Group Meeting, Orlando, FL (Invited)
31. "ASCO's Health IT WG and interoperability efforts." February 8, 2016 to the College of American Pathologists PERT Committee (Invited)
32. "Health Information Technology Work Group." February 22, 2016, ASCO Health IT WG face-to-face meeting (Invited)
33. "Cancer molecular profiling: the challenge of receiving and interpreting cancer clinico-genomic data." March 12, 2016, Vanderbilt Department of Medicine mini-retreat (Invited)
34. "ASCO's oncology standards & interoperability summit: goal setting." May 9, 2016, ASCO Oncology Standards & Interoperability Summit (Invited)
35. "Cancer and genomics." July 14, 2016, HL7 Clinical Genomics FHIR Genomics Subgroup (Invited)
36. "The 2016 Revision of the WHO classification of tumors of hematopoietic and lymphoid tissues." August 8, 2016, Tennessee Oncology Data Analysts Association (TODAA) Middle Regional Meeting (Invited)
37. "Natural language processing (NLP)." August 8, 2016, Tennessee Oncology Data Analysts Association (TODAA) Middle Regional Meeting (Invited)
38. "Cancer molecular profiling: the challenge of interpreting cancer clinico-genomic data." September 23, 2016, Vanderbilt University Personalized Medicine Day (Invited)
39. "Patients, prevention and better cancer care: national perspectives." October 26, 2016; HL7 2016 Genomics Conference: The Future of Cancer Genomics, Interoperability and Precision Patient Care (Invited)
40. "Introduction to visual analytics in health care." November 12, 2016; 2016 Workshop on Visual Analytics in Healthcare (Invited)
41. "Natural language processing and visual analytics to improve the efficiency of registry operations." March 21, 2017; Cancer Informatics for Cancer Centers (CI4CC) Spring Symposium (Invited; Special Keynote)
42. "Integrating genomic information into the clinical cancer care workflow." March 28, 2017, 2017 AMIA Joint Summits on Translational Science (Peer-reviewed)
43. "Integrating external knowledge into the oncology workflow." June 5, 2017, ASCO 2017 Annual Meeting Education Session, Chicago, IL (Peer-reviewed; Session Chair)
44. "Getting data and services to the point of care." June 26, 2017, ITdotHealth: SMART Decisions (Invited panelist)
45. "Visualizing cancer genomic data." October 2, 2017, IEEE VIS BioVis workshop. October 2, 2017 (Invited Keynote)
46. "From the N-of-1 to the N-of-many: Bringing precision oncology to the clinic." October 3, 2017, Vanderbilt University Seminars in Personalized Medicine (Invited)
47. "Supporting cancer registries through automated extraction of pathology and chemotherapy regimen information." December 18, 2017, CDC/NCI/FDA/VA Clinical Natural Language Processing Workshop (Invited)
48. "Genomic standards and knowledge bases for decision support." February 13, 2018, National Cancer Policy Forum workshop on Improving Cancer Diagnosis and Care (Invited panelist)
49. "Point/Counterpoint: Is Genome-Directed Oncology Ready for Prime Time?" June 4, 2018, ASCO 2018 Annual Meeting Meet the Professor Session, Chicago, IL (Peer-reviewed)