Michael L. Bernauer

Curriculum Vitae

EDUCATION

06/2016-Pres **Certificate in Clinical and Translational Science**
University of New Mexico Health Sciences Center, Biomedical Research Education Programs. Albuquerque, NM

06/2016-Pres **Graduate Certificate in Biomedical Informatics**
Oregon Health & Science University, Biomedical Informatics Education Programs. Portland, OR

06/2016-Pres **Biomedical Informatics Fellowship**
University of New Mexico Health Sciences Center, Health Sciences Library and Informatics Center. Albuquerque, NM

05/2016 **Doctor of Pharmacy**
University of New Mexico College of Pharmacy. Albuquerque, NM

05/2011 **Bachelor of Science, Biochemistry**
University of New Mexico. Albuquerque, NM

EXPERIENTIAL ROTATIONS

04/2016 **Medication Therapy Management**
Walgreens Boots Alliance
Patient Care • Medication Therapy Management • Patient Outcomes • Immunizations

02/2016 **Pharmacy Administration**
Lovelace Medical Center. Albuquerque, NM
Administration • Formulary standardization • Automating financial dashboards/ Monthly Operating Reports

01/2016 **Internal Medicine - Anticoagulation**
University of New Mexico Hospital. Albuquerque, NM
Disease state management • Therapeutic drug monitoring • Patient counseling • Topic discussion - *VTE Treatment* • Topic discussion - *Heparin Induced Thrombocytopenia* • Inservice - *Stroke and recurrent haemorrhage associated with antithrombotic treatment after GI bleeding in patients with atrial fibrillation: nationwide cohort study*

11/2015 **Long Term Care/Consulting**
Albuquerque Health Partners. Albuquerque, NM
IV Admixture • Inventory Management • Site inspections/regulatory • Inservice presentation - *Brexpiprazole*

10/2015 **Advanced Community Practice**

Wiley Chemist Compounding Pharmacy. Santa Fe, NM
Extemporaneous compounding • Hormone replacement therapy • Functional medicine
• Inservice presentation - *Pharmacogenomics*

09/2015   **Specialty Patient Care-Diabetes**
University of New Mexico College of Pharmacy. Albuquerque, NM
Data collection and management • Clinic based disease state management • Inservice-
BPH Management • Journal Club - *ODYSSEY LONG TERM* • Journal Club--*UKPDS33* •
Journal Club - *EMPA-REG OUTCOME*

08/2015   **Specialty Patient Care-Nephrology**
University of New Mexico College of Pharmacy. Albuquerque, NM
Patient counseling • History-taking • Drug information retrieval • Therapeutic drug
monitoring • Evaluation of laboratory data and vital signs • Journal Club - *Prediction of
Creatinine Clearance from Serum Creatinine* • Journal Club - *Correction of Anemia with
Epoetin Alfa in CKD* • Journal Club - *Mortality Effect of Coronary Calcification and
Phosphate Binder Choice in Incident Hemodialysis Patients* • Presentation - *Bone and
Mineral Disorders*

07/2015   **Research**
Rheinische Friedrich-Wilhelms University in Bonn, Germany
Dry powder medication inhalation studies using reconstructed airways from high
resolution 3D CT scans • Anderson Cascade Impactor/Next Generation Impactor
• Electron Microscopy • 3D printing

06/2015   **Research**
Rheinische Friedrich-Wilhelms University in Bonn, Germany
Dry powder medication inhalation studies using reconstructed airways from high
resolution 3D CT scans • Anderson Cascade Impactor/Next Generation Impactor •
Electron Microscopy • 3D printing

07/2014   **Hospital/Institutional Pharmacy**
Presbyterian Hospital Pharmacy, Albuquerque, NM
Journal Club - Improving Pharmacist Documentation of Clinical Interventions Through
Focused Education

07/2013   **Community Pharmacy**
Phil's Pharmacy, Albuquerque, NM
• Patient counseling • Medication Therapy Management • Disease state monitoring

EMPLOYMENT

2016-Present   **Biomedical Informatics Research Fellow**
University of New Mexico Health Sciences Library and Informatics Center

2013-2015   **Clinical Research Coordinator**
*University of New Mexico College of Pharmacy, Department of Pharmacy Practice and
Administrative Sciences. Albuquerque, NM*
Study title: *Biomarkers of Bacterial Infection in High Risk Population*

Description: Identification of biomarkers that predict *Staphylococcus aureus* infection in hemodialysis patients.

2013-2015   **Student Researcher**
University of New Mexico College of Pharmacy, Department of Pharmaceutical Sciences. Albuquerque, NM
Description: Development of a device that monitors and enforces patient medication compliance in real-time.

2013-2015   **Student Researcher**
University of New Mexico College of Pharmacy, Department of Pharmacy Practice and Administrative Sciences. Albuquerque, NM.
Description: Pulsed Field Gel Electrophoresis (PFGE) of Methicillin Resistant *Staphylococcus aureus* and maintenance of relational databases for storing clinical information for use in future studies.

2011-2013   **Clinical Research Coordinator**
New Mexico VA Healthcare System. Albuquerque, NM
Study title: *Combined Angiotensin Inhibition for the Treatment of Diabetic Nephropathy (NEPHRON-D)*
Type: Multicenter double-blind RCT
The objective was to evaluate the the combination of ACE inhibitor with an ARB versus standard treatment with ARB on the progression of kidney disease in individuals with Type 2 diabetes over nephropathy.
PMID: 24206457

2011-2013   **Clinical Research Coordinator**
New Mexico VA Healthcare System. Albuquerque, NM
Study Title: Systolic Blood Pressure Intervention Trial (SPRINT)
Type: Multicenter RCT
SPRINT was a 2-arm, multicenter, RCT designed to test whether a treatment program aimed at reducing systolic blood pressure to a goal lower than currently recommended will will reduce cardiovascular disease.
PMID: 26551272

2006-2011   **Laboratory Assistant**
Lovelace Respiratory Research Institute. Albuquerque, NM
Activities included processing human tissue samples as well as preparing and staining slides for microscopy according to established protocols and procedures.

2009   **Student Researcher**
University of New Mexico Department of Biochemistry and Molecular Biology. Albuquerque, NM
Research was directed towards non-invasive diagnosis of prostate cancer through H^1NMR analysis of prostatic secretions.

2008   **Undergraduate Research Fellow**
University of Texas M.D. Anderson Cancer Center, Science Park-Research Division. Smithville, TX

Admission to program is granted to students interested pursuing careers in biomedical research and based on academic achievement. Research was directed towards CtIP mediated silencing of endonuclear estrogen receptors in breast cancer.

2007   **Certified Nursing Assistant**
Carlsbad Medical Center. Carlsbad, NM

LICENSURE/CERTIFICATION/TRAINING

2016   **Immunization Pharmacist Prescriptive Authority in New Mexico**
New Mexico Pharmacists Association

2016   **Emergency Contraception Pharmacist Prescriptive Authority in New Mexico**
New Mexico Pharmacists Association

2016   **Tobacco Cessation Pharmacist Prescriptive Authority in New Mexico**
New Mexico Pharmacists Association

2015   **Cerner Millennium for Medical Students**

2014   **Effective Use of Class II Biological Safety Cabinets**

2014   **Biosafety Training for BSL-1 & BSL-2 Laboratories**

2014   **ABSL-2 Working Safely with Laboratory Animals**

2012-Present   **HIPAA Security and HITECH Training**

2012-Present   **Bloodborne Pathogens OSHA**

2012-Present   **BLS/CPR Certification**
American Health and Safety Institute

2012-Present   **Pharmacy Intern License**
New Mexico Regulation and Licensing Department. Albuquerque, NM

PROFESSIONAL AFFILIATIONS

2016-Present   **American Medical Informatics Association**
Membership ID: 173028

2015-Present   **American Society for Microbiology**
Membership ID: 57348369

2014-Present   **American Association of Pharmaceutical Scientists**
Membership ID: 231752

2014-2015   **Student Pharmacist Research Interest Group**
University of New Mexico College of Pharmacy
President

2013-2014   **Student Pharmacist Research Interest Group**
University of New Mexico College of Pharmacy
President-elect

HONORS/AWARDS

| 04/2016 | **Pharmaceutical Sciences Pharmaceutics Award** |
| | *University of New Mexico College of Pharmacy* |

| 12/2015 | **Dean's List** |
| | *University of New Mexico College of Pharmacy* |

| 12/2013 | **Dean's List** |
| | *University of New Mexico College of Pharmacy* |

| 12/2007 | **Dean's List** |
| | *University of New Mexico College of Arts and Science* |

| 05/2007 | **Dean's List** |
| | *University of New Mexico College of Arts and Science* |

RESEARCH/PROJECTS

2016-Pres **Improving Early Detection of Sepsis using Unstructured Clinical Text**
This project seeks to leverage information contained within unstructured clinical text of electronic health records (EHRs) to improve early detection of sepsis.

2016-Pres **Multidrug Resistant Organism (MDRO) Definitions**
This project involves the development of MDRO definitions using local susceptibility rates and antimicrobial resistance phenotypes to improve appropriateness of antimicrobial therapy while reducing rates of resistance.

2015 **drugstandards**
Python library for standardizing drug names. Facilitates conversion of brand name to generic name and correction of misspellings using Jaro-Winkler similarity

2015 **faers**
Python library for working with data from the FDA Adverse Event Reporting System. Contains tools for computing Proportional Reporting Ratios (PRR), Reporting Odds Ratios (ROR), and Multi-item Gamma Poisson Shrinker (MGPS) as well as other frequencies and statistics for drug-event pairs.
GitHub

2015 **FAERS**
Repository containing scripts for downloading, processing, and analyzing adverse event data from the FDA Adverse Event Reporting System.
GitHub

2015 **DASH Meal Planner**
Web-based tool developed in R that uses genetic-optimization to create individualized weekly meal plans based on Dietary Approaches to Stop Hypertension (DASH) guidelines. http://mlbernauer.shinyapps.io/meal-planner

2015	**Application of Supervised Learning Algorithms for Rapid Identification of MRSA PFGE Strain Types**
	Classification of MRSA PFGE strain type using k-Nearest Neighbors, Support Vector Machines, Random Forests, and Artificial Neural Network
2015	**Assessment of ACI performance on particle distribution using a modified 3D printed trachea induction port**
	Dry powder medication inhalation studies using airways reconstructed from high-resolution 3D CT scans obtained from the NCI Cancer Imaging Archive.
2014	**Development of Intelligent Pharmaceutical Packaging for Real-Time Monitoring of Patient Compliance**
	Research directed towards the development of a wireless device monitoring and enforcement of patient medication compliance in real-time
2014	**Online/interactive epidemiology mapping tool**
	Interactive mapping tool developed in Processing.
2008	**Functional Analysis of ER Transcriptional Inhibition by CtIP Co-Repressor Complex**
	Research directed towards the study of CtIP mediated silencing of endonuclear estrogen receptors in breast cancer.

GRANTS/FUNDING

09/2015	**ASM Student and Postdoctoral Fellow Travel Grant**
	ICAAC/ICC Annual Meeting. San Diego, CA. September, 201

PATENTS/INVENTIONS

05/2016	**Sachet Dispensing Device Monitor,** STC Ref No. 2016-058
	Automated, secure packaging and sealing system to monitor patient compliance with prescribed medicines.
05/2015	**Wireless Medication Monitor**, STC Ref No. 2014-051, Application US20150148947
	Wireless device allows real-time monitoring and enforcement of patient medication compliance.
03/2015	**Wireless Dispensing Device Monitor,** STC Ref No. 2016-036
	Methods for real-time monitoring of patient use of medications. Dispensing devices include; medication bottles, medication sachets, pressurized metered dose inhalers, and dry powder inhalers.

ABSTRACTS

2015	**Bernauer ML**, Lewis JM, Shroba JJ, Mercier RC. *Application of Supervised Learning Algorithms for Rapid Identification of MRSA PFGE Strain Types*, ICAAC/ICC Annual Meeting. San Diego, CA. September, 2015.

2015	Shroba JJ, Dilworth TJ, **Bernauer ML**, Mercier RC. *Clinical and Microbiological Characterization of Recurrent Invasive Methicillin Resistant Staphylococcus aureus (MRSA) Infections*. ICAAC/ICC Annual Meeting. San Diego, CA. September, 20
2015	Vazquez-Guillamet MC, Shroba JJ, Deaton B, Vazquez R, **Bernauer ML**, Mercier RC. *Trajectory and Long-Term Outcomes in Patients with MRSA Bacteremia*. ICAAC/ICC Annual Meeting. San Diego, CA. September, 2015.
2014	**Bernauer ML**, McConville JT. *Development of Intelligent Pharmaceutical Packaging for Real-Time Monitoring of Patient Compliance.* American Association of Pharmaceutical Scientists Meeting and Exposition. San Diego, CA. November, 2

PRESENTATIONS

06/2016	**Bernauer ML,** *Look at My Spots...Dermatological Pharmacology: An Update & Review.* NMPhA 87th Annual Convention. Albuquerque, NM. June 25, 2016. ACPE#: 0104-0000-16-032-L01-P
04/2016	**Bernauer ML,** Bachyrycz A. *Dermatological Agents*. New Mexico Nurse Practitioner Council Annual Conference. Albuquerque, NM. April 15, 201
04/2016	**Bernauer ML,** Park S, Bachyrycz A. *State Vaccine Exemptions.* Immunization Practices Advisory Council (IPAC) Ad Hoc committee meeting. Albuquerque, NM. April 14, 2016.
09/2015	**Bernauer ML**, Lewis JM, Shroba JJ, Mercier RC. *Application of Supervised Machine Learning Algorithms for Rapid Identification of MRSA PFGE Strain Types*. ICAAC/ICC Annual Meeting. San Diego, CA. September, 2015
11/2014	**Bernauer ML**, McConville JT. *Development of Intelligent Pharmaceutical Packaging for Real-Time Monitoring of Patient Compliance*. American Association of Pharmaceutical Scientists Meeting and Exposition. San Diego, CA. November, 2
03/2013	**Bernauer ML**, McConville JT. *Development of Smart Blister Pack to Increase Medication Adherence*. University of New Mexico College of Pharmacy Annual Research Day. Albuquerque, NM. March, 2014.
07/2008	**Bernauer ML**. *Functional Analysis of ER Transcriptional Inhibition by CtIP Co-repressor Complex.* University of Texas MD Anderson Cancer Center, Science-Park Research Division. Smithville, TX. July, 2008

VOLUNTEER/OUTREACH

2015	**The Human Digestive System** *Meadowlark Senior Center* Presentation
2014	**SPIKE Poison Prevention Program** *Petroglyph Elementary School. Albuquerque, NM* Speaker
2014	**New Mexico Regional Science Fair**

Albuquerque, NM
Judge

2013   **SPIKE Poison Prevention Program**
Springstone Montessori School. Albuquerque, NM
Speaker

2013   **New Mexico Regional Science Fair**
Albuquerque, NM
Judge

2013   **Health Fair**
Encino Gardens. Albuquerque, NM

2012   **¡Explora!**
Albuquerque, NM

NEWS/MEDIA

08/2016   **UNM professor designs prescription reminder device**
Daily Lobo
http://www.dailylobo.com/article/2016/08/medication-reminder

08/2016   **UNM College of Pharmacy develops wireless medication monitor**
UNM HSC News Beat
http://hscnews.unm.edu/news/unm-health-sciences-develops-wireless-medication-monitor

INTERESTS/SKILLS

Machine Learning, Natural Language Processing, Statistical Modeling	Managed Care, Medication Therapy Management, Pharmacovigilance, Pharmacoeconomics	Data Visualization, Text Mining, Data Mining, Big Data, Linked Data, Internet-of-Things, Wearable Tech
R, Python, Julia, Matlab, SQL, Processing, HTML, CSS, Latex, MySQL, SQLite, Access, Shiny	Clinical Decision Support, Risk Assessment Models, Recommendation	Clinical Research, Reproducible Research, Post-market Surveillance