

# Michael L. Bernauer

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## *Curriculum Vitae*

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### EDUCATION

#### UNIVERSITY OF NEW MEXICO

2012–Present **Doctor of Pharmacy**, UNIVERSITY OF NEW MEXICO COLLEGE OF PHARMACY, Albuquerque, NM.

2011 **Bachelor of Science, Biochemistry**, UNIVERSITY OF NEW MEXICO, Albuquerque, NM.

#### COURSERA

2015 **Reproducible Research**, JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH, Roger D. Peng, [PDF](#).

2015 **Developing Data Products**, JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH, Brian Caffo, [PDF](#).

2014 **Machine Learning**, STANFORD UNIVERSITY, Andrew Ng, [PDF](#).

2014 **Cuaranderismo, Traditional Medicine**, UNIVERSITY OF NEW MEXICO, Eliseo Torres, [PDF](#).

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### EXPERIENCE/EMPLOYMENT

#### EXPERIENTIAL ROTATIONS

11/2015 **Long Term Care/Consulting**, ALBUQUERQUE HEALTH PARTNERS.

10/2015 **Advanced Community Practice**, WILEY CHEMIST COMPOUNDING PHARMACY.

9/2015 **Specialty Patient Care: Diabetes**, UNIVERSITY OF NEW MEXICO-HSC COLLEGE OF PHARMACY.

8/2015 **Specialty Patient Care: Nephrology**, UNIVERSITY OF NEW MEXICO-HSC COLLEGE OF PHARMACY.

7/2015 **Research**, UNIVERSITY OF BONN, INSTITUTE OF PHARMACY, LABORATORY OF PHARMACEUTICAL TECHNOLOGY AND BIOPHARMACEUTICS, Bonn, Germany.

6/2015 **Research**, UNIVERSITY OF BONN, INSTITUTE OF PHARMACY, LABORATORY OF PHARMACEUTICAL TECHNOLOGY AND BIOPHARMACEUTICS, Bonn, Germany.

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7/2014 **Hospital/Institutional Pharmacy**, PRESBYTERIAN HOSPITAL PHARMACY.

7/2013 **Community Pharmacy**, PHIL'S PILLS.

#### EMPLOYMENT

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 Populations

*Description:* The purpose of the study was to identify 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: Research activities were directed towards the development of a device that allows monitoring and enforcement of patient medication adherence and compliance in real-time with single-dose resolution.

2013–2015 **Student Researcher**, UNIVERSITY OF NEW MEXICO COLLEGE OF PHARMACY DEPARTMENT OF PHARMACY PRACTICE AND ADMINISTRATIVE SCIENCES, Albuquerque, NM.

Description: Research activities included Pulsed Field Gel Electrophoresis (PFGE) of clinical Methicillin Resistant *Staphylococcus aureus* (MRSA) isolates as well as the development and maintenance of relational databases for the storage of clinical and bacterial information.

2011–2013 **Clinical Research Coordinator**, NEW MEXICO VA HEALTHCARE SYSTEM, Albuquerque, NM.

Study Title: Combined Angiotensin Inhibition for the Treatment of Diabetic Nephropathy

Type: Multicenter, Randomized, Double-Blind, Placebo-Controlled, Phase III Clinical Trial

Sponsor: Department of Veteran Affairs

Description: The objective was to evaluate the combination of angiotensin converting enzyme inhibitor (ACEI) with an angiotensin receptor blocker (ARB) vs. standard treatment with angiotensin receptor blocker on the progression of kidney disease in individuals with Type 2 diabetes overt nephropathy.

Citation: Fried LF et al. Combined angiotensin inhibition for the treatment of diabetic nephropathy. N Engl J Med. 2013 Nov 14. VA NEPHRON-D Coordinator

2011–2013 **Clinical Research Coordinator**, NEW MEXICO VA HEALTHCARE SYSTEM, Albuquerque, NM.

Study Title: Systolic Blood Pressure Intervention Trial (SPRINT)

Type: Multicenter, Randomized, Clinical Trial

Sponsor: Wake Forest University Baptist Medical center

Description: The Systolic Blood Pressure Intervention Trial (SPRINT) was a 2-arm, multicenter, randomized clinical trial designed to test whether a treatment program aimed at reducing systolic blood pressure (SBP) to a lower goal than currently recommended will reduce cardiovascular disease (CVD) risk.

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- 2006–2011 **Laboratory Assistant**, LOVELACE RESPIRATORY RESEARCH INSTITUTE, Albuquerque, NM.  
Description: Activities included receiving and processing human tissue samples including erythrocytes, lymphocytes, sputum and urine as well as preparing and staining slides for microscopy according to established protocols and procedures.
- 2009 **Student Researcher**, UNIVERSITY OF NEW MEXICO DEPARTMENT OF BIO-CHEMISTRY AND MOLECULAR BIOLOGY, Albuquerque, NM.  
Description: Research was directed at establishing a non-invasive approach for the identification of prostate cancer in male patients through  $H^1$ NMR analysis of citrate levels via prostatic secretions.
- 2008 **Undergraduate Research Fellow**, UNIVERSITY OF TEXAS M.D. ANDERSON CANCER CENTER SCIENCE PARK-RESEARCH DIVISION, Smithville, TX.  
Study Title: Functional Analysis of ER Transcriptional Inhibition by CtIP Co-repressor Complex  
Description: Admission to the program is granted on a competitive basis to academically talented undergraduates considering careers in basic biomedical research. Research was directed towards CtIP mediated silencing of endonuclear estrogen receptors in breast cancer.
- 2006 **Certified Nursing Assistant**, CARLSBAD MEDICAL CENTER, Carlsbad, NM.

## LICENSURE

- 2013–Present **Pharmacy Intern License**, NEW MEXICO REGULATION AND LICENSING DEPARTMENT, Albuquerque, NM..

## PROFESSIONAL AFFILIATIONS

- 2015–Present **Student Membership**, AMERICAN SOCIETY FOR MICROBIOLOGY (ASM), Membership ID: 57348369.
- 2014–Present **Student Membership**, AMERICAN ASSOCIATION OF PHARMACEUTICAL SCIENTISTS (AAPS), Membership ID: 231752.
- 2014–2015 **President**, STUDENT PHARMACIST RESEARCH INTEREST GROUP (SPRIG), University of New Mexico College of Pharmacy.
- 2013–2014 **President Elect**, STUDENT PHARMACIST RESEARCH INTEREST GROUP (SPRIG), University of New Mexico College of Pharmacy.

## HONORS/AWARDS

- 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 SCIENCES.
- 05/2007 **Dean's List**, UNIVERSITY OF NEW MEXICO COLLEGE OF ARTS AND SCIENCES.

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## RESEARCH/PROJECTS

2015 **drugstandards**

Description: Python library for standardizing drug names into a single format. This package uses a database of drug synonyms and brandnames to standardize drug names to generic names. To handle misspellings, the standardization method will return the generic name for the most similar match based on Jaro-Winkler similarity. [GitHub](#)

2015 **faers**

Description: Python library for working with data from the FDA Adverse Event Reporting System. This library 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**

Description: A repository containing scripts to download, process, and analyze adverse event data from the FDA Adverse Event Reporting System. [GitHub](#)

2015 **DASH Meal Planner**

Description: R-based web application for generating DASH compliant meal plan using 256 DASH-compliant recipes from the Mayo Clinic. Users specify dietary requirements such as total daily calories, carbohydrate, fat, protein, fiber, sodium and using genetic optimization techniques, the application will return a meal plan to satisfy those requirements.

<https://mlbernauer.shinyapps.io/meal-planner>

2015 **Application of Supervised Learning Algorithms for Rapid Identification of MRSA PFGE Strain Types**

Description: Automated classification of MRSA PFGE strain type using Support Vector Machines, Random Forest and Artificial Neural Networks. [PDF](#)

2015 **Assessment of ACI performance on particle distribution using a modified 3D printed trachea induction port**

Description: The purpose of this project is to determine how Anderson Cascade Impactor performance varies when using a 3D printed trachea model. [PDF](#)

2014 **Development of Intelligent Pharmaceutical Packaging for Real-Time Monitoring of Patient Compliance**

Description: Research was directed towards development of a device that uses printable circuits to allow real-time monitoring and enforcement of patient medication adherence with single dose resolution. [colorbluePDF](#)

2014 **Online/interactive epidemiology mapping tool**

Description: Development of a custom online interactive epidemiological mapping tool for visualization of tuberculosis cases across the US.

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2008 **Functional Analysis of ER Transcriptional Inhibition by CtIP Co-Repressor Complex**

Description: Research was directed towards CtIP mediated silencing of endonuclear estrogen receptors in breast cancer.

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## GRANTS/FUNDING

- 2015/09 **ASM Student and Post Doctoral Fellow Travel Grant, ICAAC/ICC Annual Meeting, San Diego, CA, September 2015.** [PDF](#)

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## PATENTS/INVENTIONS

2015 **Wireless Dispensing Device Monitor**

*STC Ref No.* 2016-036

Description: The invention allows for real-time monitoring of patient use of medications. Dispensing devices include: medication bottles, medication sachets, pressurized metered dose inhalers, dry powder inhalers.

2014 **Wireless Medication Monitor**

*STC Ref No.* 2014-051

Description: The invention allows real-time monitoring and enforcement of patient medication compliance.

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## PUBLICATIONS/ABSTRACTS

- 2015 **M. L. Bernauer**, J. M. Lewis, J. J. Shroba, R. C. Mercier. Application of Supervised Learning Algorithms for Rapid Identification of MRSA PFGE Strain Types, *ICAAC/ICC Annual Meeting, San Diego, CA, September 2015.* [PDF](#)
- 2015 J. J. Shroba, T. J. Dilworth, **M. L. Bernauer**, R. C. Mercier. Clinical and Microbiological Characterization of Recurrent Invasive Methicillin Resistant *Staphylococcus aureus* (MRSA) Infections, *ICAAC/ICC Annual Meeting, San Diego, CA, September 2015.* [PDF](#)
- 2015 M. C. Vazquez-Guillamet, J. J. Shroba, B. Deaton, R. Vazquez, **M. L. Bernauer**, R. C. Mercier. Trajectory and Long-Term Outcomes in Patients with MRSA Bacteremia, *ICAAC/ICC Annual Meeting, San Diego, CA, September 2015.*[PDF](#)
- 2014 **Michael L. Bernauer**, Jason T. McConville. Development of Intelligent Pharmaceutical Packaging for Real-Time Monitoring of Patient Compliance, *American Association of Pharmaceutical Scientists (AAPS) Meeting and Exposition, San Diego, CA, November 2014.* [PDF](#)

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## PRESENTATIONS

- 09/2015 **M. L. Bernauer**, J. M. Lewis, J. J. Shroba, R. C. Mercier. Application of Supervised Machine Learning Algorithms for Rapid Identification of MRSA PFGE Strain Types, *ICAAC/ICC Annual Meeting, San Diego, CA, September 2015.*[PDF](#)

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- 12/2014 **Michael L. Bernauer**, University of New Mexico College of Pharmacy Summer Research Fellowship (SRF), *University of New Mexico College of Pharmacy, Albuquerque, NM, December 2014*
- 11/2014 **Michael L. Bernauer**, Jason T. McConville. Development of Intelligent Pharmaceutical Packaging for Real-Time Monitoring of Patient Compliance, *American Association of Pharmaceutical Scientists (AAPS) Meeting and Exposition, San Diego, CA, November 2014*. [PDF](#)
- 03/2013 **Michael L. Bernauer**, Jason T. McConville. 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 **Michael L. Bernauer**. Functional Analysis of ER Transcriptional Inhibition by CtIP Co-repressor Complex, *MD Anderson Cancer Center Science Park-Research Division (MDACC-SPRD), Smithville, TX, July 2008*.

## INTERESTS/SKILLS

- Programming/web
- Machine/statistical learning
- Informatics
- R, Python, Julia, Matlab, SQL, L<sup>A</sup>T<sub>E</sub>X
- Data mining/analysis
- Text mining/NLP