

# 蔡苗

生物统计学博士研究生（三年级）

美国圣路易斯大学，公共卫生与社会正义学院，流行病与生物统计系

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相关网站: [GitHub](#), [ORCID](#), [Google Scholar](#), [ResearchGate](#), [LinkedIn](#), [Scopus](#)

出生日期: 1993 年 7 月 14 日—中国湖北省武汉市

## 研究领域

贝叶斯统计, 可靠性理论, 临床流行病学, 健康经济学, 因果推断

## 教育经历

|             |                          |
|-------------|--------------------------|
| 2017 – 2020 | 美国圣路易斯大学 生物统计方向 公共卫生学博士  |
| 2014 – 2017 | 中国华中科技大学 医院管理学方向 管理学硕士   |
| 2010 – 2014 | 中国华中科技大学 卫生事业管理学方向 管理学学士 |

## 工作经历

|             |                                       |
|-------------|---------------------------------------|
| 2019 – 2020 | 美国退伍军人事务部圣路易斯分部, 临床流行病学研究中心 生物统计研究员   |
| 2017 – 2019 | 圣路易斯大学公共卫生与社会正义学院 (美国国家自然科学基金资助) 研究助理 |
| 2016        | 湖北武汉雕龙数据科技有限公司 数据科学家                  |
| 2014        | 湖北省卫生与计划生育委员会 实习科员                    |

## 编程技能

|                                 |   |
|---------------------------------|---|
| R                               | 每日 R 使用者, 熟练使用: <code>tidyverse</code> , <code>data.table</code> , <code>shiny</code> , <code>rstan</code> ...                    |
| Python                          | 运用常见包进行机器学习和深度学习: <code>pandas</code> , <code>pyspark</code> , <code>dask</code> , <code>h2o</code> , <code>tensorflow</code> ... |
| SAS                             | 美国退伍军人事务部全国超过 20 亿门诊和住院病人病历数据的处理和统计建模   |
| Stan & JAGS                     | 使用吉布斯抽样和汉密尔顿蒙特卡洛模拟进行贝叶斯统计推断   |
| SQL                             | 超过 20 亿条美国退伍军人事务部门门诊和住院病历首页数据管理、数据清洗和整合   |
| Stata & SPSS                    | 计量经济和统计建模, 指导研究生和入门水平的研究人员  |
| L <sup>A</sup> T <sub>E</sub> X | 期刊印刷和书籍出版水准的文档排版  |

## 参与的研究项目

|             |   |
|-------------|---|
| 2019 – 2021 | 美国退伍军人事务部 <i>Department of Veteran Affair's Health Services Research and Development Service (HSR &amp; D)</i> Cause-specific mortality among users of Proton Pump Inhibitors.                                      |
| 2017 – 2019 | 美国国家自然科学基金 ( <i>National Science Foundation, NSF</i> ) GOALI/Collaborative Research: Human Maintenance - A Prognostics Framework to Model Changes in Drivers' Safety Performance and Optimize Dispatching Policies. |
| 2015 – 2018 | 中国国家自然科学基金面上项目 基于结构方程模型的紧密型医疗联合体绩效评价以及影响因素研究  |
| 2012 – 2015 | 中国国家自然科学基金面上项目 基于病种质量管理的城市综合医院住院医疗资源利用评价模型与管理路径研究   |
| 2013 – 2014 | 中国国家卫生与计划委员会项目 公立医院功能定位及其规模设置研究   |
| 2013 – 2014 | 中国国家卫生与计划委员会项目 我国医疗中心设置与规划布局研究  |
| 2017 – 2018 | 武汉市武昌区卫生与计划委员会 区域化健康资源整合与一体化服务创新模式研究  |
| 2016 – 2017 | 湖北省医改办 湖北省基本医疗服务病种范围的界定研究   |
| 2015 – 2016 | 深圳市福田区前期项目办项目 深圳市福田区社康中心基本设备配置标准及规划研究   |
| 2015 – 2016 | 深圳市福田区前期项目办项目 深圳市福田区医疗机构设备配置标准及规划   |
| 2015 – 2016 | 孝感市卫生与计划委员会项目 孝感市医疗资源配置与利用现状及其配置策略研究  |
| 2014 – 2015 | 孝感市人大常委会项目 鄂东北区域医疗中心建设可行性论证   |

## 荣誉 & 获奖

|      |                                 |
|------|---------------------------------|
| 2018 | 国家留学基金委 国家建设高水平大学公派攻读学位博士研究生奖学金 |
| 2017 | 圣路易斯大学公共卫生与社会正义学院 博士研究生全额奖学金    |
| 2017 | 华中科技大学 优秀硕士毕业生                  |
| 2017 | 华中科技大学 全日制硕士一等奖学金               |
| 2016 | 国家留学基金委 国家建设高水平大学公派联合培养硕士研究生奖学金 |
| 2016 | 华中科技大学 全日制硕士一等奖学金               |
| 2015 | 华中科技大学 全日制硕士一等奖学金               |
| 2014 | 华中科技大学 优秀本科毕业生                  |
| 2014 | 湖北省教育厅 优秀本科毕业论文二等奖              |
| 2013 | 华中科技大学 国家奖学金                    |
| 2012 | 华中科技大学 国家励志奖学金                  |
| 2012 | 香港道德会 香港道德会奖学金                  |
| 2011 | 华中科技大学 国家励志奖学金                  |

## 媒体报道

|      |   |
|------|---|
| 2019 | Cincinnati Public Radio: <a href="#">Miami University Is On The Road To Safer Driving</a> ,                                   |
| 2019 | Miami University, News and Communications: <a href="#">Miami researchers study factors affecting truck driver alertness</a> , |

2019 Saint Louis University, College for Public Health and Social Justice, college connect: [SLU Study Finds Vertically Integrated Hospital Care Improves Cancer Patient Outcomes](#).

## 学术组织会员

2019 – 美国统计协会 (American Statistical Association): 会员,  
2017 – 美国公共卫生协会 (American Public Health Association): 会员,  
2017 – 中国留美经济学会 (The Chinese Economists Society): 会员,  
2017 – 中国卫生政策与管理学会 (China Health Policy and Management Society): 会员.

## 学术期刊审稿

国际学术期刊同行评议审稿人:

2019 – JAMIA (Journal of the American Medical Informatics Association) Open,  
2019 – Clinical Epidemiology,  
2019 – International Journal of Geriatric Psychiatry,  
2018 – BMJ (British Medical Journal) Open,  
2017 – International Journal for Equity in Health.

## 出版 & 演讲

### 国际同行评议期刊文章

2019 Eric Adjei Boakye, Nosayaba Osazuwa-Peters, Betty Chen, [Miao Cai](#), Betelihem Tobo, Sai Chal-lapalli, Paula Buchanan, Jay Piccirillo (2019). “Multilevel correlates of and development of a nomogram for in-hospital mortality among hospitalized head and neck cancer patients”, *JAMA Otolaryngology-Head & Neck Surgery*. Forthcoming (SCI Q1, IF: 3.502, rank: 1/42).

2019 Benjamin Bowe, Yan Xie, Yan Yan, [Miao Cai](#), Ziyad Al-Aly. (2019). “Integrative Non-linear Exposure-Response Model for Estimation of Burden of Chronic Kidney Disease Attributable to Ambient Fine Particulate Matter Air Pollution”, *BMJ Global Health*. Forthcoming.

2018 Xiaojun Lin, [Miao Cai](#), Qiang Fu, et al. (2018), “Does Hospital Competition Harm Inpatient Quality? Empirical Evidence from Shanxi, China”, *International Journal of Environmental Research and Public Health*. DOI: [10.3390/ijerph15102283](#) (SSCI Q1, IF: 2.468, rank: 38/164)

2018 [Miao Cai](#), Echu Liu, Wei Li\*, et al. (2018), “Rural Versus Urban Patients: Benchmarking the Outcomes of Patients with Acute Myocardial Infarction in Shanxi, China from 2013 to 2017”, *International Journal of Environmental Research and Public Health*. DOI: [10.3390/ijerph15091930](#) (SSCI Q1, IF: 2.468, rank: 38/164)

2018 [Miao Cai](#), Echu Liu, Hongbing Tao\*, et al. (2018), “Does A Medical Consortium Influence Health Outcomes of Hospitalized Cancer Patients? An Integrated Care Model in Shanxi, China”, *International Journal of Integrated Care*. DOI: [10.5334/ijic.3588](#) (SSCI Q2, IF: 2.489, rank: 22/82)

2018 Nan Zhang, Xiang Hu, Qiao Zhang, Peng Bai, [Miao Cai](#), et al. (2018), “Non-high-density lipoprotein cholesterol to high-density lipoprotein cholesterol ratio is an independent risk factor for di-

- abetes mellitus: results from a population-based cohort”, *Journal of Diabetes*. DOI: [10.1111/1753-0407.12650](https://doi.org/10.1111/1753-0407.12650) (SCI Q2, IF: 3.298, rank: 64/145)
- 2017 Miao Cai, Echu Liu, Hongbing Tao\*, et al. (2017), “Does Level of Hospital Matter? A Study of Mortality of Acute Myocardial Infarction Patients in Shanxi, China”. *American Journal of Medical Quality*. DOI: [10.1177/1062860617708608](https://doi.org/10.1177/1062860617708608) (SCI Q3, IF: 1.662, rank: 69/98)
- 2017 Xiaojun Lin, Miao Cai, Hongbing Tao\* (2017), “Insurance status, inhospital mortality and length of stay in hospitalised patients in Shanxi, China: a cross-sectional study”, *BMJ Open*. DOI: [bmjopen-2017-015884](https://doi.org/10.1136/bmjopen-2017-015884) (SCI Q2, IF: 2.413, rank: 43/155)
- 2017 Manli Wang, Haiqing Fang, Hongbing Tao\*, Zhaohui Cheng, Xiaojun Lin, Miao Cai, et al. (2017), “Bootstrapping data envelopment analysis of efficiency and productivity of county public hospitals in Eastern, Central, and Western China after the public hospital reform”, *Journal of Huazhong University of Science and Technology*. DOI: [10.1007/s11596-017-1789-6](https://doi.org/10.1007/s11596-017-1789-6) (SCI Q4, IF: 0.948, rank: 273/293)
- 2016 Zhaohui Cheng, Miao Cai, Hongbing Tao\*, et al. (2016), “The efficiency and productivity measurement of rural township hospitals in China: a bootstrapping data envelopment analysis”, *BMJ Open*. DOI: [10.1136/bmjopen-2016-011911](https://doi.org/10.1136/bmjopen-2016-011911) (SCI Q1, IF: 2.369, rank: 38/155)
- 2016 Xiaojun Lin, Hongbing Tao\*, Miao Cai, et al. (2016), “A Systematic Review and Meta-analysis of the Relationship Between Hospital Volume and Outcome for Percutaneous Coronary Intervention”, *Medicine*. DOI: [10.1097/MD.0000000000002687](https://doi.org/10.1097/MD.0000000000002687) (SCI Q2, IF: 1.804, rank: 57/155)
- 2015 Qin Shu, Miao Cai, Hongbing Tao\*, et al. (2015), “What does a Hospital Survey on Patient Safety reveal about patient safety culture of surgical units compared with that of other units? ”, *Medicine*. DOI: [10.1097/MD.0000000000001074](https://doi.org/10.1097/MD.0000000000001074) (SCI Q2, IF: 2.133, rank: 40/155)
- 2015 Zhaohui Cheng, Hongbing Tao\*, Miao Cai, et al. (2015), “Technical efficiency and productivity of Chinese county hospitals: an exploratory study in Henan province, China”, *BMJ Open*. DOI: [10.1136/bmjopen-2014-007267](https://doi.org/10.1136/bmjopen-2014-007267) (SCI Q1, IF: 2.562, rank: 32/155)

## 专著章节

- 2019 Fadel M. Megahed, L. Allison Jones-Farmer, Miao Cai, Steven E. Rigdon, Manar Mohamed. (December, 2019), “A Statistical (Process Monitoring) Perspective on Human Performance Modeling in the Age of Cyber-Physical Systems”. In *Frontiers in Statistical Quality Control 13* (pp. 21-53). Springer, Cham.

## 会议摘要

- 2020 Miao Cai, Kenton Johnston, Xiaojun Lin\*, et al. (2020), “Does the medical consortium reform improve hospital efficiency? Evidence from secondary general hospitals in Shanxi, China, 2013-2017”. *International Conference on Health Policy Statistics* by American Statistical Association in San Diego, California, 2020. [link](#)
- 2019 Miao Cai\*, Eric Adjei Boakye, Ziqi Peng, et al. (2019), “Disparity of The Disparities: A Comparison of Rural-Urban Disparity Regarding In-Hospital Mortalities Among Acute Myocardial Infarction Patients, An Observational Study Between China and The United States, 2013-2015”. *International*

*Society for Pharmacoeconomics and Outcomes Research (ISPOR) 2019 .*

- 2016 Xiaojun Lin, Hongbing Tao\*, Miao Cai, et al. (2016), “Health insurance and quality and efficiency of medical care for patients with acute myocardial infarction in tertiary hospitals in Shanxi, China: a retrospective study”. *The Lancet-CAMS Health Summit*. DOI: [10.1016/S0140-6736\(16\)31997-3](https://doi.org/10.1016/S0140-6736(16)31997-3)
- 2016 Manli Wang, Hongbing Tao\*, Haiqing Fang, Zhaohui Cheng, Miao Cai, et al. (2016), “Patient safety culture in surgical departments versus other departments in county hospitals of Hubei province, China: a cross-sectional survey”. *The Lancet-CAMS Health Summit*. DOI: [10.1016/S0140-6736\(16\)31998-5](https://doi.org/10.1016/S0140-6736(16)31998-5)
- 2015 Zhaohui Cheng, Hongbing Tao\*, Miao Cai, et al. (2015), “Using a two-stage data envelopment analysis to estimate the efficiency of county hospitals in China: A panel data study”. *The Lancet-CAMS Health Summit*. DOI:[10.1016/S0140-6736\(15\)00645-5](https://doi.org/10.1016/S0140-6736(15)00645-5)

## 会议报告

- 2019 Xiaojun Lin, Kenton Johnston, Miao Cai. (March 2019), “Does the medical consortium reform improve hospital efficiency? Evidence from secondary general hospitals in Shanxi, China, 2013-2017”, *The 1st Health Economics and Policy Forum* at Peking University, Beijing, China
- 2018 Miao Cai, Echu Liu, Hongbing Tao\*, et al. (May, 2018), “Does A Medical Consortium Influence Health Outcomes of Hospitalized Cancer Patients: An Integrated Care Model in Shanxi, China”, *2018 Biennial Conference “Advances in Health Policy and Healthcare: The Road Ahead”* by China Health Policy and Management Society (CHPAMS) at Yale University, New Haven, Connecticut, USA

## 中文同行评议期刊文章

- 2019 陈默, 蔡苗, 黄阿红, 沈梦雪, 吴其, 张泽苗, 乐虹\*. 基于 K-means 聚类与支持向量机的大病患者住院费用影响因素与控制策略研究. *中国医院管理*. 2019, 39(5): 45-47. [Link](#)
- 2017 蔡苗, Echu Liu, 陶红兵\*, 程兆辉, 林小军. 市场竞争对医院技术效率的影响——基于河南省和江苏省的实证研究. *中国医院管理*. 2017, 37(6): 22-24. [Link](#)
- 2017 Leidy S. Delgado, 陶红兵\*, 蔡苗, Ashleigh Oguagha. “肿瘤多学科团队实施现状及影响因素研究”. *中国医疗管理科学*. 2017, 7(3): 41-46. [Link](#)
- 2017 夏述旭, 陶红兵\*, 都丽婷, 蔡苗, 林小军, 林海锋. “‘互联网+’背景下移动医疗质量与安全问题分析及强策研究”. *中国卫生质量管理*. 2017, 24(3): 82 - 85. [Link](#)
- 2017 何金露, 陶红兵\*, 林小军, 肖婷, 蔡苗. “不同所有制医院医疗质量差异比较与思考”. *中国卫生质量管理*. 2017, 24(4): 18 - 20. [Link](#)
- 2016 林海锋, 陶红兵\*, 程兆辉, 林小军, 蔡苗. “河南部分县级中医院的医疗资源利用效率及其影响因素分析”. *中华医院管理杂志*. 2016, 32(2): 117 - 120. [Link](#)
- 2016 左玉玲, 陶红兵\*, 程兆辉, 林海锋, 蔡苗. “基于 Malmquist 指数的河南省民营医院效率变化分析”. *中国医院管理*. 2016; 36(6):35-37. [Link](#)
- 2016 张潘, 陶红兵\*, 林小军, 蔡苗. “我国医疗联合体的质量与安全现状及对策探讨”. *中国医院管理*. 2016, 36(11): 52-54. [Link](#)
- 2016 林小军, 陶红兵\*, 张士靖, 程兆辉, 蔡苗, 刘海通, 林海锋. “医院效率研究演进路径可视化分

- 析”. 中国医院管理. 2016, 36(4): 27-29. [Link](#)
- 2015 蔡苗, 陶红兵\*. “重症监护室不良事件报告现状分析和应对策略”. 中国卫生质量管理. 2015, 22(2): 11-14. [Link](#)
- 2015 林海锋, 陶红兵\*, 程兆辉, 蔡苗, 林小军. “武汉地区医院产科资源利用效率及影响因素研究”. 中国医疗管理科学. 2015, 5(5): 9 - 13. [Link](#)
- 2013 蔡苗, 陶红兵\*. “内科和外科系统医护人员不良事件报告情况及阻碍因素”. 中国医院. 2013, 17(8): 31 -33. [Link](#)
- 2013 蔡苗\*, 徐小兵, 蔡海洋, 常瑞, 林小军, 黄艳然. “医疗不良事件识别途径及干预策略”. 医学与社会. 2013, 26(9): 20 -22. [Link](#)
- 2013 蔡苗, 陶红兵\*, 林小军, 徐小兵, 蔡海洋, 陈飞翔. “阻碍医护人员报告医疗不良事件的影响因素分析”. 中国卫生质量管理. 2013, 20(5): 41 -43. [Link](#)

## 已投稿论文

- 2019 [Miao Cai](#), Mohammad Ali Alamdar Yazdi, Qiong Hu, Amir Mehdizadeh, Aleksandr Vinel, Karen C. Davis, Fadel Megahed, Steven E. Rigdon\*. “The association between crashes and safety-critical events: synthesized evidence from crash reports and naturalistic driving data among commercial truck drivers”, 已投稿至 *Transportation Research Part C: Emerging Technologies*. (SCI Q1, IF: 5.775, rank: 3/37)
- 2019 [Miao Cai](#), Rong Yang, Shaoping Yang, Tongzhang Zheng, Guanghui Dong, Hualiang Lin, Steven E. Rigdon, Hong Xian, Leslie J. Hinyard, Pamela K. Xaverius, Thomas E. Burroughs, Echu Liu, Daire R. Jansson, Bin Zhang\*, Zhengmin Qian\*. “Association between maternal physical exercise and the risk of preterm birth: A case-control study in Wuhan, China”, 已投稿至 *Journal of Epidemiology & Community Health*. (SCI Q1, IF: 3.872, rank: 10/98)
- 2019 [Miao Cai](#), Echu Liu, Steven E. Rigdon, Daire Jansson, Leslie Hinyard, Zhengmin Qian, Jen-jen Chang. “Validating Two Multiple Indicators and Three Single Numeric Score Charlson or Elixhauser Comorbidity Indices Among the Population of Shanxi, China”, 已投稿至 *Clinical Epidemiology*. (SCI Q1, IF: 3.178, rank: 40/186)
- Xiaojun Lin, Kenton Johnston, Miao Cai\*. “Medical consortium and hospital efficiency: Evidence from China”, 已投稿至 *Social Science & Medicine*. (SCI Q1, IF: 3.087, rank: 10/186)
- 2019 Yan Xie, Benjamin Bowe, Yan Yan, [Miao Cai](#), Ziyad Al-Aly. “County-level Contextual Characteristics and Disparities in Life Expectancy”, 已投稿至 *Mayo Clinic Proceedings*. (SCI Q1, IF: 7.091, rank: 12/160)
- 2019 Qiong Hu, Amir Mehdizadeh, Nasrin Mohabbati Kalejahi, Mohammad Ali Alamdar Yazdi, [Miao Cai](#), Aleksandr Vinel, Steven E. Rigdon, Karen C. Davis, Fadel M. Megahed\*. “Bridging the Gap between Transportation Safety Research and its Incorporation in Optimization Models: a Detailed Review and Perspective”, 已投稿至 *Accident Analysis & Prevention*, (SSCI Q1, IF: 3.058, rank: 1/16)

## R 包开发

- 2019 R Package: NDS. “An R package for manipulating naturalistic driving datasets”.  
Source: <https://github.com/caimiaoo714/NDS>



- 2017 R Package: *MiaoCom*. “A R package for calculating comorbidity indexes (i.e. Charlson Comorbidity Index, Elixhauser Comorbidity Index, and C<sub>3</sub> Index) for epidemiologists”.  
Source: <https://github.com/caimiaoo714/MiaoCom>

## 网站开发和维护

- 2019 Supplementary materials for “Bridging the Gap between Transportation Safety Research and its Incorporation in Optimization Models: a Detailed Review and Perspective”, a manuscript submitted to *Transportation Research Part C: Emerging Technologies*.  
Source: <https://caimiaoo714.github.io/TrafficSafetyReviewRmarkdown/>