
BIOGRAPHICAL SKETCH

NAME: Chandrasekhar, Rameela

eRA COMMONS USER NAME (credential, e.g., agency login): CHANDRR

POSITION TITLE: Assistant Professor in Biostatistics

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Calicut, India	B.S.	08/01	Major: Physics, Minor: Chemistry, Mathematics
Madurai Kamaraj University, India	M.S.	08/04	Computer Applications
State University of New York at Buffalo (SUNY at Buffalo)	M.A.	06/08	Biostatistics
State University of New York at Buffalo	Ph.D.	09/11	Biostatistics

A. Personal Statement

After joining the Department of Biostatistics at the Vanderbilt University's School of Medicine in 2011, I have collaborated as the chief doctorate-level biostatistician with the ICU Delirium and Cognitive Impairment Study group, Center of Excellence for Children in State Custody as well as the Tennessee Emerging Infections Program. In these collaborations, I have led the statistical core for various multi-center clinical and population intervention studies, focused on implementing efficient study designs, employing novel statistical methods to make casual inferences in observational research and constructing predictive models to improve placement decision making in the state's child welfare systems. For these collaborations, I lead a team of staff biostatisticians and graduate student research assistants. I also co-instruct and mentor Doctor of Nursing Practice students at the School of Nursing with regards to critical statistical skills needed to effectively communicate and translate evidence into practice initiatives. Coupled with my 4 years' experience as a pre-doctoral research affiliate at the Roswell Park Cancer Institute, I have published over 60 articles in areas of health services and clinical research. An area of my methodological research interest lies in development of efficient methods for analyzing longitudinal data, causal inferences and exploration of efficient methodologies for the conduct of clinical trials.

B. Positions and Honors**Positions and Employment**

08/05 - 05/06 Graduate Teaching Assistant: Department of Biostatistics, SUNY at Buffalo.

08/06 - 09/07 Graduate Research Assistant: Department of Biostatistics, SUNY at Buffalo.

10/07 - 10/11 Pre-Doctoral Research Affiliate: Roswell Park Cancer Institute, SUNY at Buffalo.

06/09 - 08/09 Instructor in Biostatistics: Department of Biostatistics, SUNY at Buffalo.

11/11 - 01/13 Instructor in Biostatistics, Department of Biostatistics, Vanderbilt University School of Medicine.

02/13 - Present Assistant Professor, Department of Biostatistics, Vanderbilt University School of Medicine.

C. Contribution to Science

1. Statistical Methods for efficient inferences about the mean area under the curve and efficiency of an adaptive trial: This contribution to the biostatistics methodology literature was primarily focused on the development of an efficient linear-model based methodology for making inferences about the mean area under the curve. These methods were extended to data where observations are subject to limits of detection as well as testing for bioequivalence to assess the therapeutic equivalence between a generic and an innovator brand

drug and a were found to be a more cost-effective viable alternative to traditional methods with superior inferential properties.

- a) GE Wilding, **R Chandrasekhar**, AD Hutson. A new linear model-based approach for inferences about the mean area under the curve. *Statistics in Medicine*. 2012; 31(28): 3563-78. PMID: 23175104.
- b) **R Chandrasekhar**, GE Wilding. A modification of a percentile estimation procedure based on generalized polya urns. *Communications in Statistics – Theory and Methods*. 2014; 2951-2957.
- c) **R Chandrasekhar**, Shi Y, AD Hutson, GE Wilding. A novel approach to testing for bioequivalence based on modeling the within-period dependence structure. *J Biopharmaceutical Statistics*. 2015; 25(6):1320-38. PMID: 25671781.
- d) **R Chandrasekhar**, Shi Y, AD Hutson, GE Wilding. Likelihood-based inferences about the mean area under a longitudinal curve in the presence of observations subject to limits of detection. *Pharmaceutical Statistics*. 2015; 14(3):252-61. PMID: 25832442.

2. Collaborating with the ICU Delirium and Cognitive Impairment Study Group at Vanderbilt, I've worked to study various aspects on minimizing bias and increasing precision in the conduct of clinical trials and observational studies.

- a) HA Smith, M Gangopadhyay, CM Goben, NL Jacobowski, MH Chestnut, S Savage, MT Rutherford, D Denton, JL Thompson, **R Chandrasekhar**, M Acton, J Newman, HP Noori, MK Terrell, SR Williams, K Griffith, TJ Cooper, EW Ely, DC Fuchs, PP Pandharipande. The Preschool Confusion Assessment Method for the ICU: Valid and Reliable Delirium Monitoring for Critically Ill Infants and Children. (2016). *Critical Care Medicine*;44(3):592-600. PMID: 26565631; PMCID: PMC4764386 [Available 3/1/19].
- b) HAB Smith, M Gangopadhyay, CM Goben, NL Jacobowski, MH Chestnut, JL Thompson, **R Chandrasekhar**, SR Williams, K Griffith, EW Ely, DC Fuchs, PP Pandharipande. Delirium and Benzodiazepines Associated with Prolonged ICU Stay in Critically Ill Infants and Young Children. (2017). *Critical Care Medicine*, 45(9):1427-1435. PMID: 28594681.
- c) TD Girard, JL Thompson, PP Pandharipande, NE Brummel, JC Jackson, MB Patel, CG Hughes, **R Chandrasekhar**, BT Pun, LM Boehm, MR Elstad, RB Goodman, GR Bernard, RS Dittus, EW Ely. Clinical phenotypes of delirium during critical illness and severity of subsequent long-term cognitive impairment: A prospective cohort study. (2018). *Lancet Respiratory Medicine*; 6(3):213-222. PMID: 29508705.
- d) MB Patel, JC Jackson, A Morandi, TD Girard, CG Hughes, JL Thompson, AL Kiehl, MR Elstad, ML Wasserstein, RB Goodman, JC Beckham, **R Chandrasekhar**, EW Ely, PP Pandharipande. Incidence and Risk Factors for ICU-related Posttraumatic Stress Disorder In Veterans and Civilians. (2016). *American Journal of Respiratory and Critical Care Medicine*, 193(12): 1373-1381. PMCID: PMC4910886.

3. Before joining the Department of Biostatistics at Vanderbilt University School of Medicine, I worked for four years as a pre-doctoral research affiliate at the Roswell Park Cancer Institute (RPCI). While there, I collaborated with the department of Urologic Oncology in validating the RoSS™ (Robotic Surgical Simulator), which aims to provides safe, practical, and efficient robot-assisted surgery training to novice surgeons, thus reducing surgical error and making robot-assisted surgical education feasible.

- a) SA Seixas-Mikelus, A Adal, T Kesavadas, G Srimathveeravalli, A Hussain, **R Chandrasekhar**, GE Wilding, KA Guru. Can Image-based Virtual Reality Help Teach Anatomy? *Journal of Endourology*. 2010; 24(4): 629 - 634. PMID: 20192818.
- b) SA Seixas-Mikelus, T Kesavadas, G Srimathveeravalli, **R Chandrasekhar**, GE Wilding, KA Guru. Face validation of a novel robotic surgical simulator. *Urology*. 2010; 76(2): 357 - 360. PMID: 20299081.
- c) SA Seixas-Mikelus, AP Stegemann, T Kesavadas, G Srimathveeravalli, G Sathyaseelan, **R Chandrasekhar**, GE Wilding, JO Peabody, KA Guru. Content Validation of a Novel Robotic Surgical Simulator. *British Journal of Urology International*. 2011; 107: 1130-1135. PMID: 21029316.
- d) T Kesavadas, AP Stegemann, G Sathyaseelan, AJ Chowriappa, G Srimathveeravalli, SA Seixas-Mikelus, **R Chandrasekhar**, GE Wilding, KA Guru. Validation of Robotic Surgical Simulator (RoSS). *Studies in Health Technology and Informatics*. 2011; 163: 274-6. PMID: 21335803.

4. My extensive collaborations with biomedical researchers since 2005 have resulted in publications in various clinical application areas such as Pediatrics, Radiology, Emergency Medicine and health disparities research.

- a) H Frangoul, E Min, W Wang, **R Chandrasekhar**, C Calder, M Evans, B Manes, K Bruce, V Brown, R Ho, J Domm. Incidence and Risk Factors for Hypogammaglobulinemia in Pediatric Patients Following Allogeneic Stem Cell Transplant. *Bone Marrow Transplantation*. 2013; 48(11):1456-9. PMID: 23708706.
- b) GY Yang, NK Malik, **R Chandrasekhar**, L Flaherty, R Iyer, B Kuvshinoff, J Gibbs, GE Wilding, JF Gibbs, K Salerno May. Change in CA 19-9 levels after chemoradiotherapy predicts survival in patients with locally advanced unresectable pancreatic cancer. *Journal of Gastrointestinal Oncology*. 2013; 4(4):361-369. PMCID: PMC3819784.
- c) C Sloan, **R Chandrasekhar**, E Mitchel, W Schaffner, ML Lindegren. Socioeconomic disparities and influenza hospitalizations, Tennessee, USA. (2015). *Emerging Infectious Diseases*, 21(9):1602-10. PMCID: PMC4550146.
- d) **R Chandrasekhar**, C Sloan, E Mitchel, D Ndi, N Alden, A Thomas, NM Bennett, PD Kirley, M Hill, EJ Anderson, R Lynfield, K Yousey-Hindes, M Bargsten, SM Zansky, K Lung, M Schroeder, M Monroe, S Eckel, TM Markus, CN Cummings, S Garg, W Schaffner, ML Lindegren. Social Determinants of Influenza Hospitalization in the United States. (2017). *Influenza and Other Respiratory Viruses*, 21(9):1602-10. PMCID: PMC5720587.

A listing of my publications may be found at:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/rameela.chandrasekhar.1/bibliography/41454225/public/?sort=date&direction=ascending>.

D. Research Support

Ongoing Research Support

KL2TR002245-02 (Hartmann) (Wilson/Bernard)
NCATS

06/01/2017 – 02/28/2022

Institutional Career Development Core

The goal of the Vanderbilt-Meharry Translational Nexus is to inspire careers dedicated to interdisciplinary translational science and to produce leaders in the field who are optimally prepared to guide and participate in ground-breaking transdisciplinary teams.

Role: Investigator

5R01AG035117-06 (Ely - PI)

04/30/2016 - 02/28/2019

NIH/NIA

The MIND USA Study

We will determine if either haloperidol or ziprasidone shorten delirium duration, improve survival, affect length of stay in the hospital, or improve long-term brain function in ICU patients.

Role: Biostatistician

VUMC 7131/ 5U50 CK000198 (Schaffner - PI)

01/01/2012 - 12/31/2018

TN Department of Health

Emerging Infections Programs(EIPs) are population based centers of excellence established through a network of state health departments collaborating with academic institutions, local health departments, public health and clinical laboratories, infection control professionals and healthcare providers.

Role: Biostatistician

5R01HL111111-06 (Pandharipande - PI)

05/10/2016 – 06/30/2019

NIH/NHLBI

Altering Sedation Paradigms to Improve Brain Injury and Survival in Severe Sepsis

The MENDS II study will compare propofol and dexmedetomidine, and determine the best sedative medication to reduce delirium and improve survival and long-term brain function in our most vulnerable patients—the ventilated septic patient.

Role: Biostatistician

VUMC8459/GR-11-31880(Epstein - PI)

07/01/2006 - 06/30/2022

State of TN

Early and Periodic Screening Diagnosis & Treatment Center of Excellence

Vanderbilt University's Departments of Psychiatry and Pediatrics have collaborated to create a program to serve children who are at-risk for or in state custody. The State of Tennessee has designated our program a Center of Excellence for Children in State Custody and our services extend to 39 Middle Tennessee counties. Our consultation, diagnostic and care plan development services are available to the Department of Children's Services, Department of Health, community providers and Best Practice Network providers involved in the care of children in or at-risk for custody.

Role: Biostatistician

1R01GM120484-02 (Patel)

01/01/2017-11/30/2021

NIGMS

The INSIGHT-ICU Study: Illuminating Neuropsychological dysfunction and Systemic Inflammatory mechanisms Gleaned after Hospital

Cognitive skills are essential to live independently, manage finances, maintain employment, and function in society. Loss of these cognitive skills puts a tremendous burden on society as seen with dementias, Alzheimer's disease, and traumatic brain injury. The INSIGHT-ICU Study (Illuminating Neuropsychological dysfunction and Systemic Inflammatory mechanisms Gleaned after Hospitalization in Trauma-ICU Study) is the first comprehensive and longitudinal long-term cognitive impairment study after traumatic injury. The societal impact of long-term cognitive impairment after trauma is immense given that these patients are young and constitute a large proportion of employable adults.

1R03AG060085-01 (Shinall)

09/01/2018 - 08/31/2020

NIA

The Surgery for Cancer with Option of Palliative Care Expert (SCOPE) Trial

Palliative care has been shown to improve and lengthen the lives of patients being treated for cancer by medical oncologists. This study investigates whether palliative care improves the lives of patients who undergo surgery for cancer.

Completed Research Support

5K23AG032355 (Han - PI)

07/01/2010 - 06/30/2016

NIH/NIMH

Delirium in the Emergency Department

The major goal of this project is to develop ED-based delirium interventions. These interventions will emphasize early diagnosis and treatment of delirium in the ED, and will potentially have a profound impact in the way ED cares for older adults.

Role: Biostatistician

5K23AG040157 (Vasilevskis - PI)

08/01/2011 - 06/30/2016

NIH/NIA

Predicting Acute Brain Dysfunction in Older Patients: A Quality Improvement Tool

To develop a dynamic prediction model for acute brain dysfunction and establish its potential for future applications that will improve the quality and safety for older hospitalized patients.

Role: Biostatistician

VUMC4306 (Ely)

05/01/2014 – 04/30/2015

HCA, Inc.

"ABCDE Pilot"

HCA is evaluating the ABCDE Bundle/Protocol (Awakening trials, Breathing trials, Choice of sedation, Delirium monitoring, and Early ambulation) by adopting it among a select group of HCA facilities as well as assess length of time on the ventilator/case and hospital length of stay.

5R03AG045095-02 (Brummel - PI)

09/01/2013 - 07/31/2015

NIH/NIA

Early Prediction of Long-Term Cognitive Impairment Following Critical Illness

The proposed research will derive and validate clinical prediction tools that will accurately identify critically ill patients, early in the course of their illness, at risk of developing long-term cognitive impairment that persists at 1-year follow-up.

Role: Biostatistician

Evaluation of Tennessee's

03/03/2014-03/02/2019

Title IV-E Waiver

(active, effort ended)

The goal of the "Tennessee's Title IV-E Waiver Demonstration Evaluation" project is to conduct the process, outcome, and cost evaluation of Tennessee's Title IV-E Waiver Demonstration. Tennessee's Title IV-E Waiver Demonstration is a 5-year effort to implement front-end standardized assessment and provide three tiers of wraparound services of increasing intensity with non-custodial children and families served by the Tennessee Department of Children's Services. The project Principal Investigator (PI) - Chapin Hall at the University of Chicago - will be responsible for all evaluation activities. The PI will subcontract with Vanderbilt University for consultation on evaluation design, part of the outcome evaluation, and the process evaluation.

Role: Biostatistician