



UNIVERSITY OF CENTRAL FLORIDA

COLLOQUIUM

Navigating Missing Data from MAR to MNAR:

Principled Imputation Strategies in Meta-Analyses and Clinical Trials

Speaker: Dr. Amit Chowdhry

Affiliation: AdventHealth Orlando & University of Central Florida

Abstract

Missing data can induce bias and increase variance in both aggregate meta-analyses and longitudinal clinical trials. While principled methods under missing-at-random (MAR) assumptions are widely used, evaluating the impact of non-ignorable missingness remains essential. This talk demonstrates practical missing-at-random (MAR) and missing-not-at-random (MNAR) sensitivity approaches across two clinical research settings: imputing missing sample variances/standard deviations in meta-analyses and evaluating longitudinal patient-reported outcomes. We apply these methods to secondary QoL endpoints from NRG/RTOG 0415, comparing conventional and hypofractionated radiotherapy across EPIC bowel and urinary domains. Through simulations, graphical diagnostics, and tipping point analyses, we illustrate how to use δ -based imputation to determine the robustness of treatment effects under plausible MNAR mechanisms, demonstrating a practical approach for sensitivity analyses in clinical research.

Speaker Bio



Amit Chowdhry graduated Magna Cum Laude from Cornell University with a Bachelors Degree in Biometry and Statistics and Computational Biology. Subsequently he completed a Medical Scientist Training Program (MSTP) at the University of Rochester, earning an MD with Distinction in Research and a PhD in Statistics.

His primary appointment is at AdventHealth Orlando, where he is a board-certified radiation oncologist with a focus on GI and CNS malignancies. He is also an Assistant Professor of Radiation Oncology at the University of Central Florida, and an Adjunct Assistant Professor of Biostatistics and Computational Biology/Radiation Oncology at University of Rochester Medicine.

His research interests lie in leveraging modern statistical methods to answer important clinical questions in cancer care. His statistical research interests include statistics for clinical trials, missing data, meta-analysis, causal inference, and machine learning/artificial intelligence.

Event Details

- **Date:** Monday, August 31, 2026
- **Time:** 3:30 PM – 4:30 PM
- **Location:** MSB 318

Refreshments will be served from 2:30pm–3:30pm in MSB 201

School of Data, Mathematical, and Statistical Sciences