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MASTER'S THESIS PRESENTATION

Bayesian Meta-Analysis with Rare-Event Data: A Survival Modeling Approach

WHEN
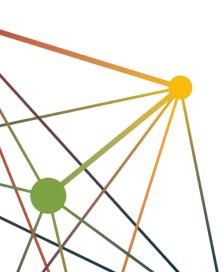**July 21, 2022**
11:30 AM

WHERE
Zoom Meeting
For ZOOM presentations, details will be provided in an email announcement for this seminar.

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Randomized experiments often aim to understand the effect of treatment on a rare outcome, such as mortality. While some studies can attain the statistical power to detect such effects, more often data must be combined across studies as part of a meta-analysis. This approach has proven successful in many applications; however, the wide range of possible modeling choices remains under-explored. For example, effects on rare outcomes are typically modeled using Poisson regressions. An interesting alternative would be survival modeling, which draws upon event time data to allow for time-varying risk. In this paper, we extend an existing meta-analysis to incorporate a survival modeling approach. Specifically, we fit Bayesian hierarchical survival models to child mortality data from 14 studies of clean water interventions in developing countries. Our results are consistent with those from the original model and provide new insights into how the effects vary over time and across age groups. We conclude that survival modeling can be a useful approach in Bayesian meta-analyses of rare-event data.

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