Bayesian Adaptive Semiparametric Endpoints (Primary and Secondary) Pediatric ChatGPT (BASE-PedChatGPT) – A Web-based App

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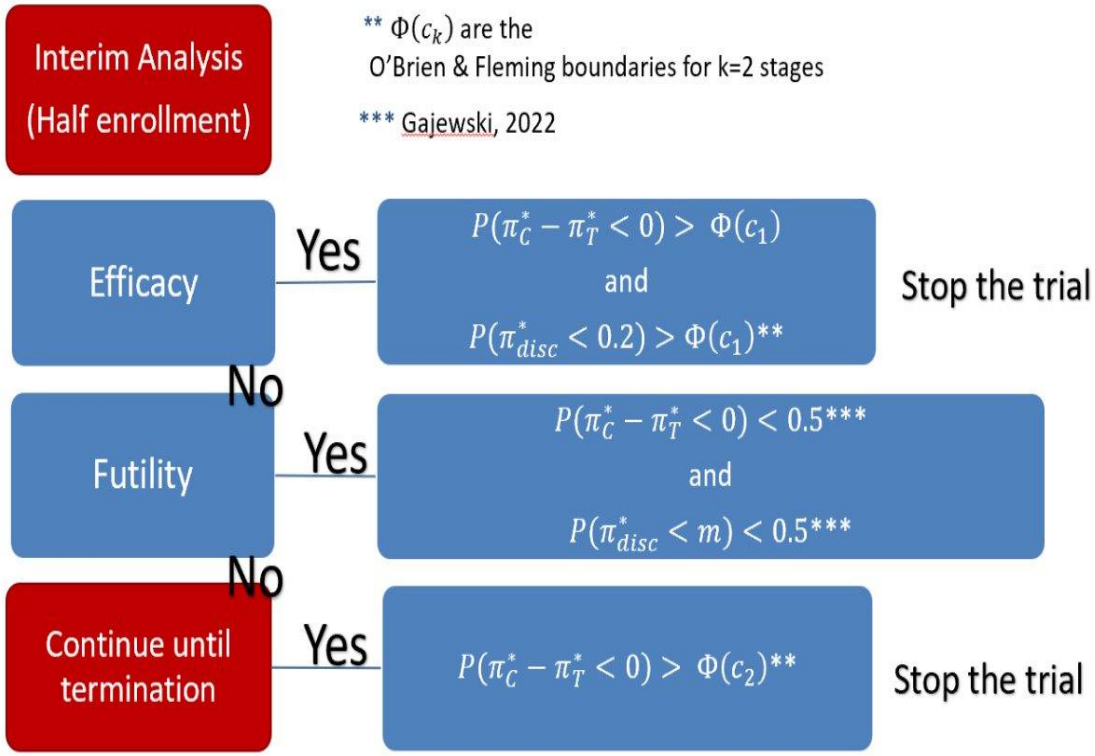
Introduction to the Design

- ✓ Bayesian Adaptive Semiparametric Approach designed to address the challenges in pediatric randomized controlled trials (RCTs) conduction.
- ✓ This methodology is particularly pertinent in scenarios where sparse or conflicting prior data is present, a common occurrence in pediatric research, especially for rare diseases.
- ✓ To demystifies advanced statistical methodologies, making them accessible and understandable to clinicians and stakeholders in pediatric trials, we designed a web-based tool BASE-PedChatGP

Introduction to the BASE-PedChatGPT

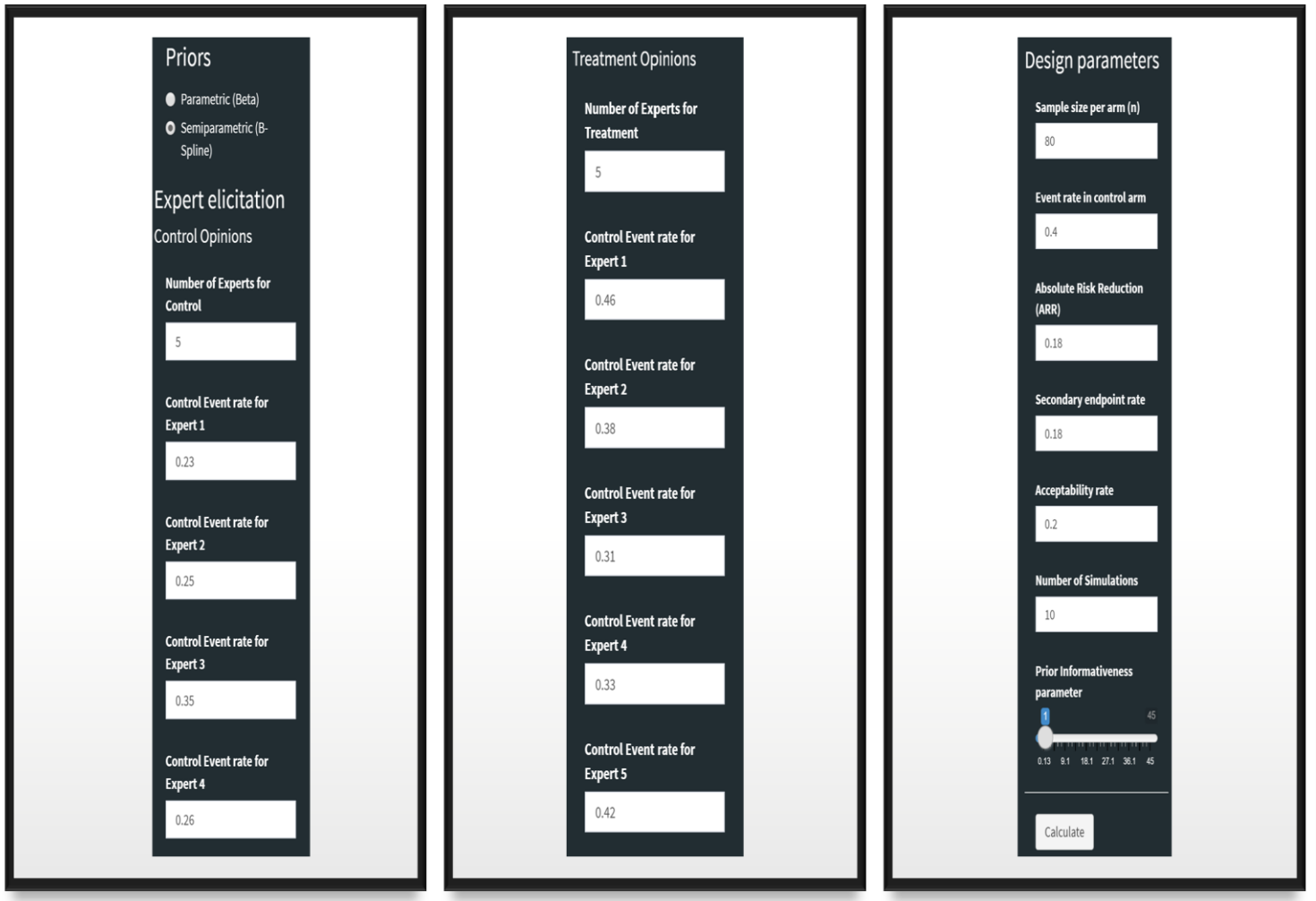
- ✓ In order to address the communication barrier in complex trial designs, we introduce a web-based Shiny application interfaced with ChatGPT.
- ✓ BASE-PedChatGPT offers an intuitive platform for inputting trial parameters and instantly visualizing the implications of different design choices.
- ✓ Additionally, this web application offers a suggested paragraph to include in a study protocol. The paragraph, about the semiparametric approach for managing primary and secondary endpoints, is generated using the ChatGPT algorithm through its API interface.



Left Side Input Menu of BASE-PedChatGPT Web App

The left side of the screen features a web chat interface that allows users to input various parameters to evaluate the study design features

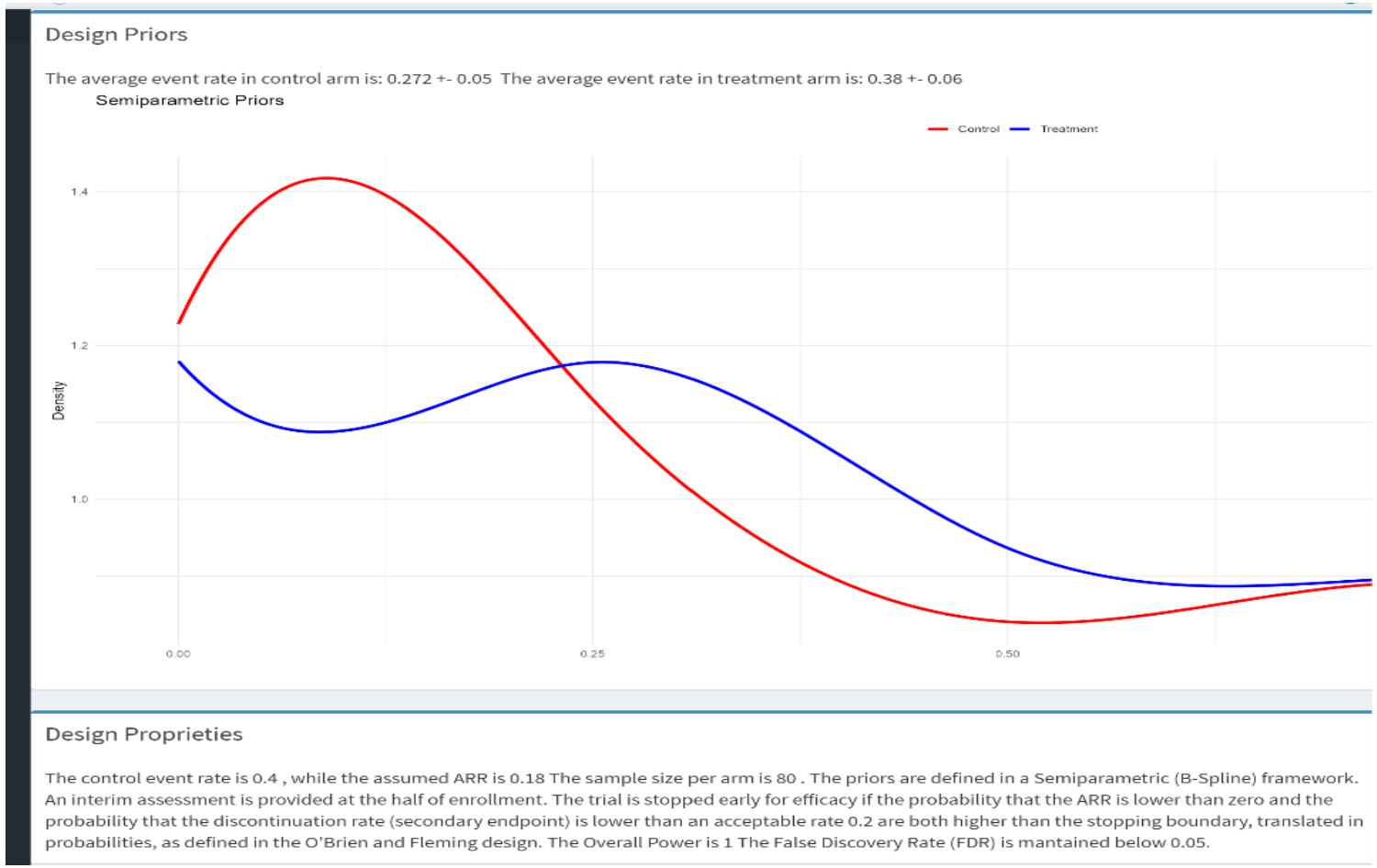
- ✓ Parametric or Semiparametric priors.
- ✓ Expert elicitation on event rate (treatment and control opinion)
- ✓ Design parameters such as Sample size per arm, Event rate in control arm, Absolute risk reduction (ARR), Secondary endpoint rate, Acceptability rate, Number of simulations and A parameter for prior informativeness



Study Design Proprieties Output of BASE-PedChatGPT Web App

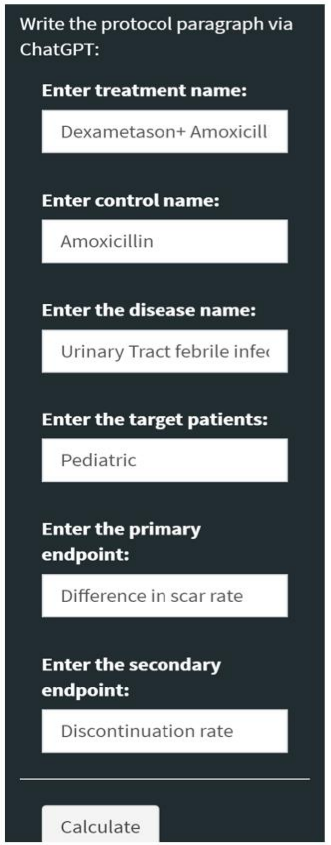
- ✓ After the user selects the input parameters, the web app displays the prior distribution densities for both the treatment and control arms.

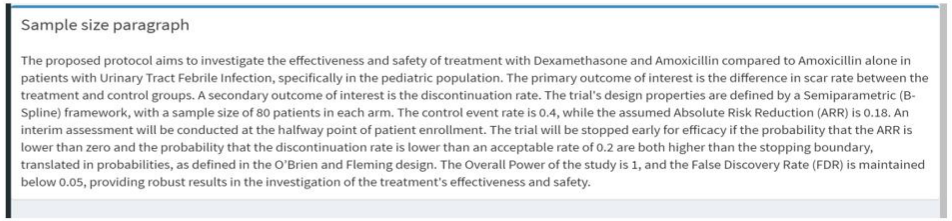
- ✓ It also presents a summary of the study design characteristics, including empirical power and the FDR, as shown in Figure.



Study Design Paragraph Output of BASE-PedChatGPT Web App

- ✓ the user can specify further trial details on the left side of the screen, such as treatment names, endpoints, disease, and target population.
- ✓ This information is essential for generating a concise study design protocol paragraph using ChatGPT, as depicted in Figure





Thank you for the attention!!