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Posters 1–49 are the top 50 posters

Biostatistics, Epidemiology, and Research Design

1 Projecting outcomes in respiratory technology-dependent children after serious illness (Project ORCAS)

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OBJECTIVES/GOALS: Children with chronic respiratory technology needs (CRTN) are becoming a dominant patient group in pediatric intensive care units (ICUs). However, little is known about patient-level, long-term outcomes in this population. The lack of such knowledge may lead to inadequate ICU therapies, interventions, or follow-up care. METHODS/STUDY POPULATION: This project will deploy a set of ecological momentary assessment (EMA) modules measuring real-time functioning as well as standardized instruments to measure child and family outcomes including health care utilization, physical functioning, and health-related quality of life following pediatric critical illness in children with CRTN. EMA has particular strength in assessing conditions where individual-level characteristics vary over time, as after critical illness. EMA's recurrent measurements allow for evaluation of the variables' temporal course and limit the potential for bias associated with recall surveys. Pulmonary function in children with CRTN in this study will be monitored over time using standardized pulmonary metrics and information from home respiratory machines. RESULTS/ANTICIPATED RESULTS: This work tests the central hypothesis that long-term functional outcomes in children with CRTN are predicted by multimodal data obtained during and shortly after critical illness. To date, 17 families (of a planned 70) have been enrolled. Adherence to EMA modules is high, with 80% completion. Following serial data collection at 3, 6, and 9 months after hospital discharge, phenotypes of recovery (including improvement, stability, or deterioration) will be described. This will include 1) describing the patient demographic and clinical features associated with each long-term outcome trajectory and 2) identifying subgroups with similar outcome trajectories using patient demographics, features of the clinical illness, and EMA data using both traditional biostatistical and causal analysis techniques. DISCUSSION/SIGNIFICANCE OF IMPACT: This project will provide important insights into the long-term outcomes following critical illness of children with CRTN while utilizing an innovative methodology. This proposal will provide the necessary information to drive future clinical trials assessing potential interventions at a number of different points to improve outcomes.

*Blue Ribbon Awardee; †Gold Ribbon Awardee

Contemporary Research Challenges

4 Modernizing clinical research: An administrative approach to unlocking the potential of decentralized clinical trials

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OBJECTIVES/GOALS: Decentralized clinical trials (DCTs) shift participation outside traditional sites. This poster explores innovative administrative strategies for incorporating decentralized elements, improving flexibility, access, and efficiency in clinical research. METHODS/STUDY POPULATION: Modern administrative approaches are crucial for unlocking DCT potential by streamlining logistics, enhancing participant experience, and ensuring regulatory compliance. Key innovations include expedited IRB Review: using innovative template language; innovative consent strategies – eConsent and remote/virtual and contactless enrollment; telehealth communications – Twilio (voice calls and text messages)/Zoom (virtual video visits); automated participant compensation and rideshare services – Greenphire ClinCard®; flexible data collection – automated recruitment/intake forms and research surveys – REDCap; mobile research unit/self-collection lab kits via mail. Implementing decentralization into your study unlocks the potential to rapidly recruit more diverse populations. RESULTS/ANTICIPATED RESULTS: The integration of decentralized elements into clinical trials holds significant potential for reducing participant burden, thereby improving recruitment, retention, and overall trial efficiency. However, the success of decentralized clinical trials relies heavily on the implementation of modern administrative approaches that streamline operations and maintain regulatory compliance. Together, these administrative advancements not only enhance the operational flexibility of decentralized trials but also support the inclusion of diverse populations by reducing geographical and logistical barriers. DISCUSSION/SIGNIFICANCE OF IMPACT: As decentralized clinical trials continue to evolve, the adoption and further innovation of modern administrative solutions will be essential in improving the overall efficiency and inclusivity of clinical research.

5 Aurora kinase inhibition synergizes with Fanconi anemia pathway defects to limit tumorigenesis†

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OBJECTIVES/GOALS: The Fanconi anemia (FA) pathway is responsible for faithful DNA damage repair. FA mutations are

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