

Short and Long-term Effects of Antibiotics on Childhood Growth

Christopher B. Forrest, Jason Block, Doug Lunsford, Charles Bailey, Jon Finkelstein, Juliane Reynolds, Sheryl Rifas-Shiman, Jessica Young, Darren Toh, Matt Bryan, Sharon Terry, Andrea Goodman, Kathleen Murphy

Study Aims

- To evaluate the comparative effects of different types, timing, and amount of antibiotics prescribed during the first 2 years of life on:
 - BMI and risk of obesity at 5 and 10 years
 - Growth trajectories from infancy onwards
- And how these effects differ according to:
 - Child gender, race/ethnicity
 - Use of steroids
 - Maternal BMI, antibiotics during pregnancy, C-section (analysis at 7 sites)
- Secondary Aim includes a qualitative assessment, through focus groups of parents/caregivers, to investigate how to best communicate study results to the community
- The study will answer important ongoing issues about the relationship between antibiotic use and weight outcomes in childhood.

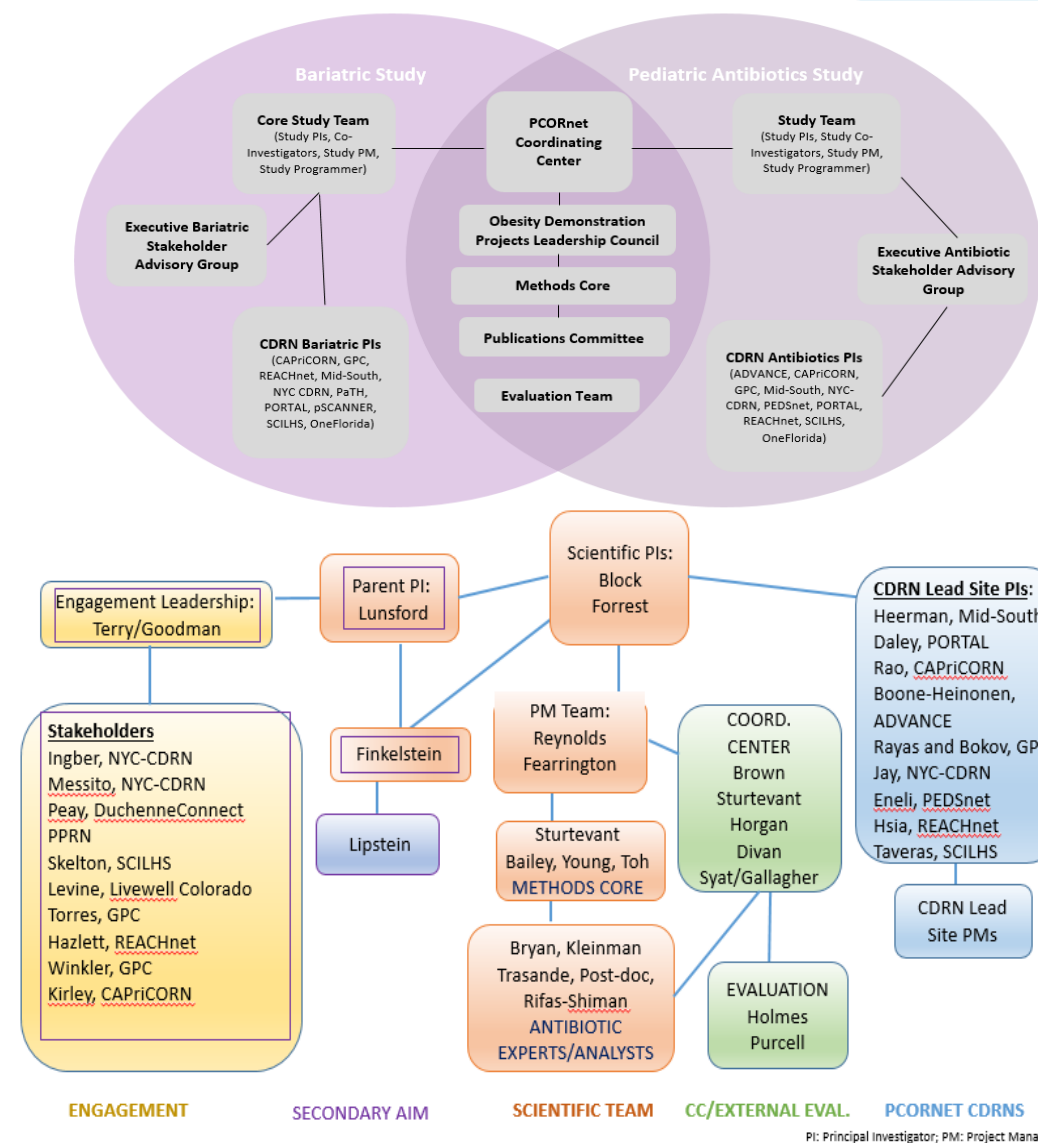
Methods

- 4 queries are planned to gather data from participating CDRNs
 - 2 Study-Specific Data Characterization queries to assess CDRN data and describe the study cohort
 - Query to procure de-identified individual-level for all study aims
 - Aggregate-level query for all study aims
- Using PCORnet's distributed research network keeps all identifiable data behind CDRN firewalls.
- Participating CDRNs:
 - ADVANCE, CAPriCORN, GPC, Mid-South, NYC-CDRN, OneFlorida, PEDSnet, PORTAL, REACHnet, SCILHS
- Participating PPRNs:
 - CENA, SAPCON, IAN, DuchenneConnect
- 2 CDRNs (Mid-South, GPC) and 2 PPRNs (SAPCON, IAN) are participating in the Secondary Aim

Background & Objectives

- Past studies have shown mixed results regarding the relationship between antibiotic use and weight outcomes.
- Studies have typically not been large enough to simultaneously compare classes of antibiotics, timing, and duration of treatment.
- This study will include a diverse and large population on which to assess these varied and complex relationships.
- Specific Objectives:
 - Complete qualitative and quantitative Study Aims within 2 year time period
 - Produce reusable analytic tools for PCORnet studies
 - Develop ongoing engagement strategy, from study conception to implementation; the CENA PPRN is leading our Executive Antibiotic Stakeholder Advisory Group (EASAG)

Governance Structure



Initial Findings

- Completed Study-Specific Data Characterization of 30 PCORnet DataMarts
- Beginning first research query to procure de-identified individual-level data for all study aims
- Expect to find a “dose-response” relationship between the number of antibiotic courses given during the first 2 years of life and both higher BMI and the probability of obesity at ages 5 and 10 years. This relationship will be strongest for broad-spectrum antibiotics prescribed in the first 6 months of life.

FUNDING / ACKNOWLEDGEMENTS

This work was supported through a Patient-Centered Outcomes Research Institute (PCORI) Program Award (OBS-1505-30699). All statements in this poster, including its findings and conclusions, are solely those of the authors and do not necessarily represent the views of PCORI, its Board of Governors or Methodology Committee.

CONTACT INFORMATION

Jason Block: jblock1@partners.org

Juliane Reynolds: Juliane_Reynolds@harvardpilgrim.org