

# Short and Long-term Effects of Antibiotics on Childhood Growth

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## 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.

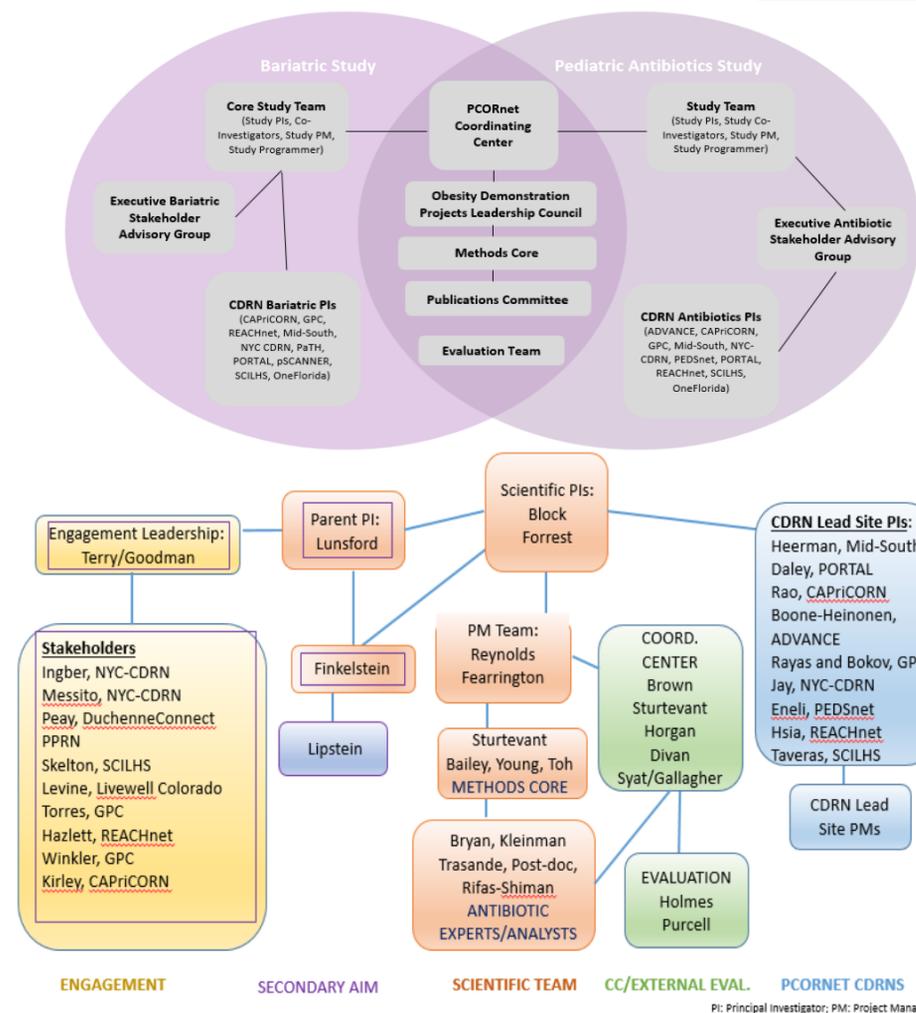
## Methods

- 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.

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