



RESEARCH IMPROVING PEOPLE'S LIVES

Closing the achievement gap using early investments in infant health

Overview

Spending \$4,000 on health investments at birth can **save \$67,000 in social program expenditures** by age 14, **boost test scores in grades 3-8**, and **increase college enrollment by 17 percentage points** for Very Low Birth Weight (VLBW) children in Rhode Island.

Pinpointing What Improves Child Outcomes

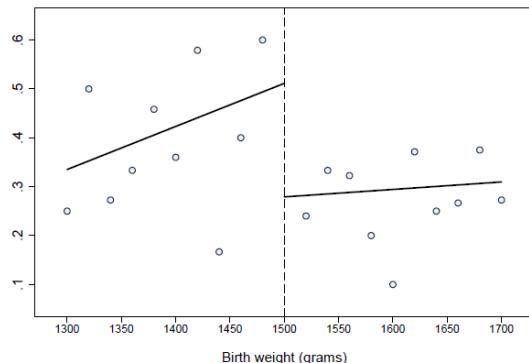
Children born with low birth weight tend to have more health difficulties, lower academic performance, and diminished later-life prospects.^{1,2} These children also tend to be minorities, have mothers who are more likely to smoke, and come from households with lower income.^{3,4}

In partnership with the Office of the Governor and agencies in Rhode Island, we built a new data lake of integrated and anonymized administrative records to unlock the power of data and science to improve policy and lives.⁵ We used this data lake to study whether early-life interventions can improve outcomes for at-risk children born at low birth weight.

Prior research shows that hospitals in many states invest \$4,000 more in health inputs for infants if the child weighs just less than 1,500 grams, which is the threshold for “Very Low Birthweight” (VLBW) status.⁶ We confirm the same is true for Rhode Island.

We developed state-of-the-art science to measure if added investments in VLBW infants improve outcomes for these at-risk children from early childhood through college. In [Chyn, Gold, & Hastings \(2019\)](#), we show that an additional \$4,000 of expenditures for VLBW children just under 1,500 grams caused:⁶

Figure 1: 4-year College Enrollment by Age 20 for Infants Below and Above the 1,500 Cut-Off



Notes: Data are from the Rhode Island birth records and National Student Clearinghouse Records

- 1) A **0.3-0.4 standard deviation increase in test scores in elementary and middle school**, relative to infants born just above the 1,500-gram (VLBW) threshold who do not receive the added inputs;
- 2) A **17-percentage point increase in college enrollment**, relative to infants born just above the VLBW threshold (see Figure 1);
- 3) A **\$67,000 decrease in social safety net expenditures by age 14**, relative to infants born just above the VLBW threshold.

We show that these gains are most likely the result of early-life interventions given to VLBW infants in their first few days of life,

rather than to differences in parental stress in early life, or differences in school enrollment choices during elementary school years. **Our results suggest that simply extending these early-life investments to more low birth weight babies could dramatically improve lives and reduce need for other social services later in life.**

⁶ We use a regression discontinuity approach, which is a [valid alternative methodology](#) to a randomized controlled trial for estimating causal impacts.