Quantifying Secondary Effects of Pediatric Illness

# Investment Narrative

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| **Discovery** | Partner  Support | Transition Services |
| Know How | Tools | Internal  Infrastructure |
| POC | Validation | Scaling |

## Summary

Illnesses, disabilities, and acute health events afflicting children often impose secondary adverse effects on the parents and siblings of the affected child. Chronic conditions such as Type 1 diabetes, asthma, and autism impose a high cognitive burden on parents. Rare health conditions such as cancer, cerebral palsy, and congenital disorders impose a high stress burden on the entire family. All of these conditions may require regular visits to specialists located far from the family’s home. As consumer cost-sharing of healthcare grows, the financial stress imposed by these conditions on families and caregivers may increase.

A substantial body of research has studied the effects of pediatric illness on families along financial, social/familial, personal strain, and cognitive burden dimensions. This research has found significant secondary impacts of pediatric illnesses, but the nature and severity of these effects appears to depend on the specific disease, family structure, and socioeconomic status, among others.

To our knowledge, no studies have examined these secondary effects through the lens of healthcare utilization and costs. This initiative proposes to use data to identify and quantify the secondary effects of pediatric health conditions on the rest of the family. We plan to identify a set of pediatric health events and conditions of dependent children, attributes of their condition, and their immediate family (as available through enrollment data). We will then quantify the potential health impacts on families as seen through rates of mental health conditions, illnesses and infections, and total costs of care, which will be quantified through a case-control analysis.

## Background

Pediatric illnesses and traumatic health events can be doubly impactful due to the affected child’s dependent status. While the health impact on the child’s physiological or psychological state may be substantial, the stress, cognitive burden, and financial impact on the child’s parents is often disruptive to their lives and the lives of any siblings. A number of studies have examined the psychosocial impacts of various pediatric conditions on families[[1]](#footnote-1),[[2]](#footnote-2). However, previous studies have not specifically examined potential downstream health consequences that these impacts may cause.

We hypothesize that these impacts may be observed through changes in health status and healthcare costs of members of an ill child’s immediate family. We propose to conduct a case-control analysis of health status and healthcare use patterns of families of children afflicted with a pediatric illness of interest for this study. Initially, the conditions of interest include:

* Type 1 Diabetes
* Cancer
* Autism
* Asthma
* Cerebral Palsy
* Traumatic acute events (e.g. extended hospitalization)

Secondary Effects of Pediatric Illness (cont.)

We plan to collect additional data on factors that may mediate the health effects on family members, including:

* Family size and structure as identified through enrollment data
* Distance from family home to child’s specialty provider
* Demographic characteristics of family (age, gender)
* Pre-existing comorbidities
* Time since initial pediatric diagnosis
* Socioeconomic status (e.g. as estimated from Census data)
* Plan characteristics (e.g. family out-of-pocket maximum), where available

The analysis will further identify a comparison set of families matched on the above characteristics but without the burden of pediatric illness. We will evaluate the impact of the specific conditions above on the following outcomes measured on members of their immediate family:

* Incidence of mental health diagnoses (depression or anxiety)
* Incidence of infection or illness requiring hospitalization
* Use of prescription drugs, specifically those for chronic pain
* Total cost of care

## Value Model

Uncovering the secondary impact of pediatric conditions may lead us to identify opportunities to provide support for families of children going through an illness or traumatic health event, if such support can be designed to address the underlying stress that may cause adverse health impacts. For example, if long travel distances to specialty care centers which must be visited frequently are determined to have secondary health effects on families, identifying ways to deliver care remotely has particularly high value to those families. Support may also be offered for other aspects of life as the parent of an ill child, such as meal preparation, stress management, and other areas.

## Competition

A few companies are doing business in areas related to support for families of children with health challenges. Almost half of the money raised by campaigns on gofundme.com is directed toward health-related expenses. A company called Meal Train offers a platform for social support of busy parents, where friends and family can sign up for times to prepare and deliver meals to an affected family.

# Investment

## Time: 3 months

## Investment $$: $50,000

## Data: Claims data from UHC commercial fully-insured population

## Patient/Clinical Access: None

## Member Distribution: None

## Technology/Devices: None

Secondary Effects of Pediatric Illness (cont.)

# Research/Killer Questions

1. Can we identify a dataset containing the pediatric illness populations of interest and their immediate family members?
2. Can we quantify the outcomes of interest and their relationship to the hypothesized mediating factors?
3. Do we see any significant secondary effects of pediatric illness on family members, in comparison to a sensibly-defined control group?

## *Internal Use*

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| Owner: Grant Weller | Venture/SS: Scott Archibald | | Studio: Kerry Koch  Res |
| Research Area: Real-world evidence | | Investment Project: N/A | |

1. <http://pediatrics.aappublications.org/content/118/Supplement_3/S203.full> [↑](#footnote-ref-1)
2. <https://academic.oup.com/abm/article-abstract/16/2/131/4617016> [↑](#footnote-ref-2)