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behavior, energy & climate change

DRIVING TRANSFORMATION
Behavior, Energy & Climate Change (BECC) / November 12-15, 2023 / Sacramento, CA

Small Changes, Big Impact:
MIT & Takeda Join Forces to Nudge Employees toward Sustainable Behavior

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Overview:

BioLife Background & Goals

Experimental Design

Outcomes

4 Key Takeaways

#BECC2023

BioLife plays a critical role meeting demand for therapies achieving Takeda's environmental commitments

OUR PURPOSE:

DONOR → PATIENT

Takeda produces more than 20 plasma derived therapies.

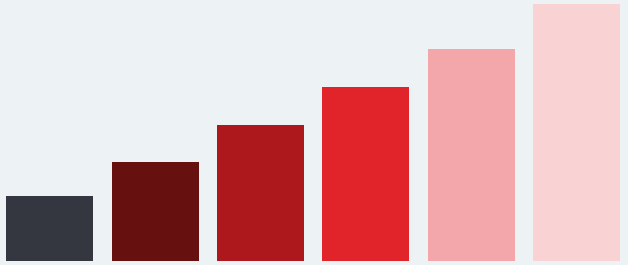
Over 57 million liters of plasma are used every year worldwide to produce therapies that treat millions of people[3]

Donations needed to treat **one patient for one year**[1]

- **130** primary immune deficiency
- **900** alpha-1 patient
- **1,200** hemophilia

GLOBAL PLASMA DEMAND:

Global demand for plasma-derived therapies has increased over the past 20 years and continues to grow, driven by broader access & improved diagnosis[2].



OUR PLANET PILLAR COMMITMENTS:

- **2025**: Reduce water withdrawal by 5%
- **2030**: Zero waste to landfill
- **2035**: Zero scope 1 & 2 GHG emissions

BioLife must scale to meet global patient demand while eliminating our waste & carbon footprints.

Our unique footprint & operations required a custom-built program

HEALTHCARE

- ✓ Highly regulated facilities
- ✓ Sterile quality-controlled processes

RETAIL

- ✓ Small individual sites, often leased
- ✓ Regional & team level site variation

INDUSTRIAL

- ✓ -36C 20’x24’ walk-in freezers
- ✓ Large temperature-controlled warehouses

BioLife Plasma Donation Network

x **230+**
global locations

Designed by economists, intended for phlebotomists

Center System	Desired Behavior Change	Intervention Introduced	Example
Donation Kits	Avoid donation kit discards due to preventable drops	Clear bins added to collect & visualize dropped kits before discard	
Freezer Doors	Close freezer door within 50 seconds of opening	Audible alarms installed to sound every 30 seconds until close	
Packaging	Properly sort all curbside recyclable materials	AI powered cameras installed in dumpsters allowing increased visibility to teams	

Systems & interventions identified in partnership with Facilities & Operations teams to ensure feasibility.

Our 5 Elements of Implementation

Intervention in Place

Education

Once

Communication

Before & Monthly

Intervention

Employee Area

Signage

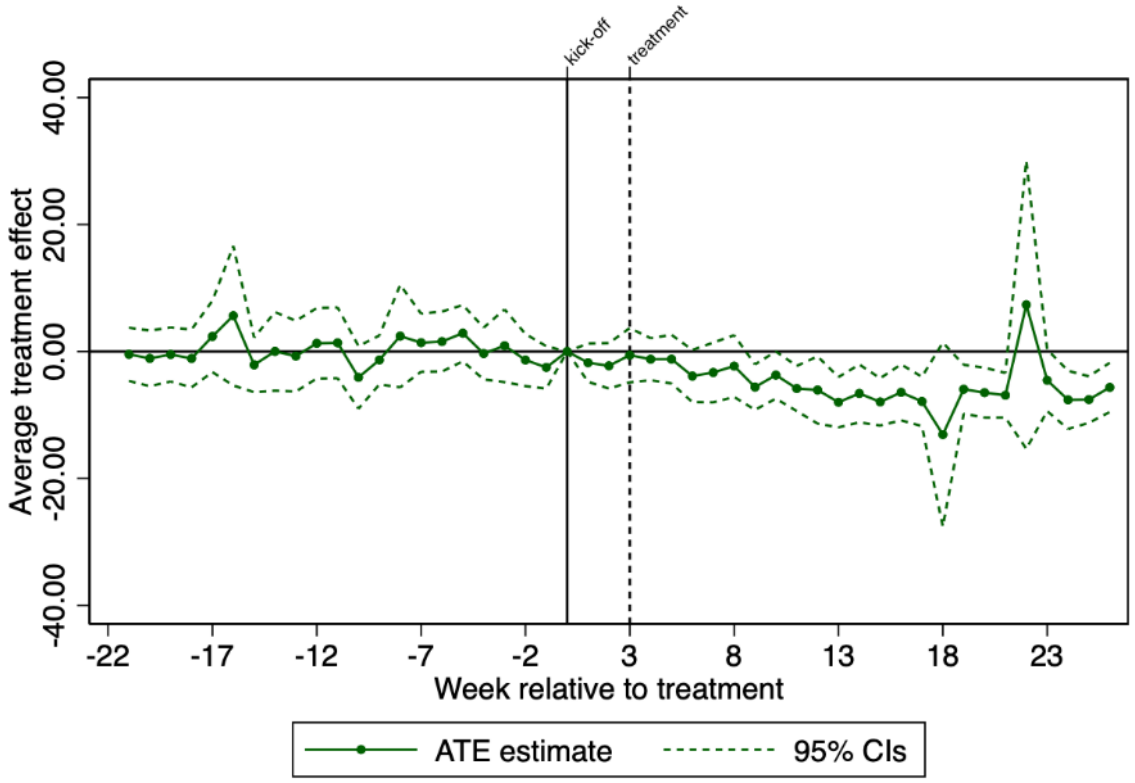
Donor Floor

Metric Tracking

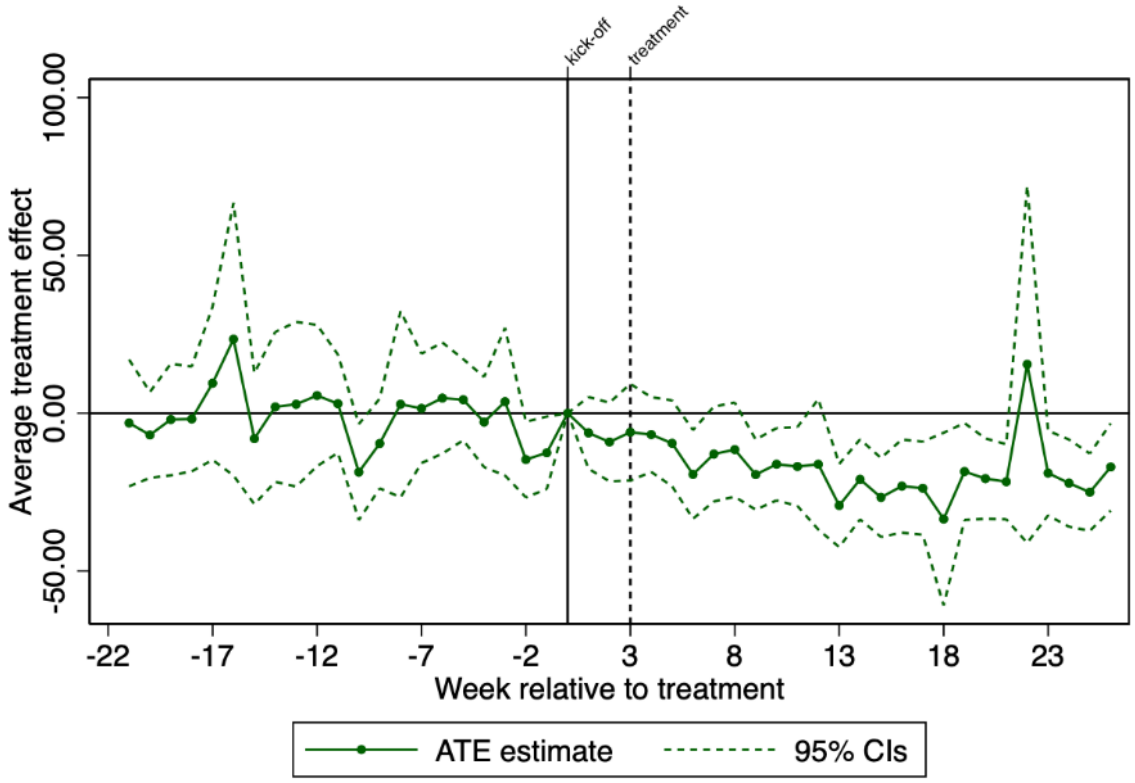
Daily Huddle

Measurable Impacts: Softgood Drops

Softgood Drops Count



Softgood Drops Cost



Experimental outcomes indicate potential for scaled environmental impacts

Measured Impact:

Approx.
70%
REDUCTION IN DISCARDED KITS DUE TO DROPS

Approx.
50%
REDUCTION IN FREEZER DOORS OPENING TIMES

Approx.
40%
REDUCTION IN UNCOLLAPSED CARDBOARD

Potential Scaled Benefit:

13 metric tons could be avoided in annual plastic waste.

8,500 hours of annual door opening time could be avoided.

1,700 miles of travel and associated Scope 3 emissions could be avoided.

Potential scaled impacts estimated based on replicating results across 200 BioLife US centers for a 12-month period.

4 Key Takeaways

1. **Impactful Interventions**
   Gather information to understand which systems provide the greatest opportunity for benefit.

2. **Data Collection**
   Ensure desired behaviors can be regularly tracked using quantified measures.

3. **Feasibility of Implementation**
   Prove interventions do not interrupt core operations at small subset of sites.

4. **Engagement**
   Establish feedback mechanism to actively work with employees to improve the program.