



# **BMC Health System + Takeda: A First-of-its-Kind Collaboration**

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Boston Medical Center  
**HEALTH SYSTEM**

## The patients we serve are **disproportionately minority and low-income**



~70% identify as people of color  
36% African American  
28% Hispanic or Latino



> 50% have an annual household  
income below \$20,400 (close to the  
federal poverty line for a family of three)



~30% use a primary language  
other than English

**Sustainability is Core to Our Mission**

**SUSTAINABILITY  
IS ~~NOT~~  
HEALTHCARE**

***REWRITING* HEALTHCARE**



## BMC + Takeda: Collaboration Objectives

1. **Tackle Carbon Emissions** from Regulated Medical Waste, including pharmaceutical packaging.
2. **Develop pilots** at BMC to implement sustainable practices and measure impact.
3. **Develop scalable models** that can be shared broadly across the healthcare sector—**accelerating progress** toward decarbonization across the healthcare industry.



## Year 1: Waste Audits



### Three Waste Stream Audits

R<sub>x</sub>

Outpatient  
Pharmacy



Inpatient  
Pharmacy



Infusion  
Center

### Waste Stream Types



## Year 1: Waste Audits



# Waste Audit Findings: Inpatient Pharmacy Preliminary Opportunities

## Reduce



### Opportunity to Reduce and Reuse

- **72% of IV bags** were discarded unused—an opportunity to streamline workflows for greater efficiency.
- **14 kg of plastic bags** are discarded in the inpatient pharmacy each day, presenting an opportunity substitute reusable or compostable options.

## Recovery



### Enhance Recovery

- **Advanced recycling techniques** can be engaged to handle complex multi-materials items such as glass vials.
- Syringes, particularly those without needles, **can be recycled separately to recover medical-grade plastic**, which can be repurposed into new medical grade plastic products.

## Sorting



### Improve Sorting of Red Bag Waste/Sharps

- **Red bag waste causes higher greenhouse gas emissions**, requiring transport to a sterilization facility before being shipped again to a final waste facility.
- **Only 15%** of items in the red bag waste stream were correctly sorted. **The most common missorted item was intact glass vials**, which should not be classified as red bag waste and could instead be recycled.

## Redesign



### Innovate Blister Pack Materials

- Accounting for **25% of pharmaceutical packaging waste**, blister packs are produced from a **mix of foils and plastics**, making recycling extremely difficult.
- **Innovation is needed** to redesign blister packs with circularity in mind.

## Mapping Emissions Reduction Opportunities

### Redesign

