

# MEDICAL WASTE ON PALM BEACH ISLAND BEACHES

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## Abstract

There has been an increase in the amount of biomedical waste collected on beaches in Palm Beach, Florida. The impact of this waste is unknown. We determined the amount of biomedical waste, type of medical waste, and distribution pattern. Over 1200 items were collected on beaches in 2018 and 2019. Items collected included syringes, needles, blood vials, Rx bottles, and IV components. These items are considered harmful to the environment, marine life, and humans. The most common type of material found in 2018 was syringes. In 2019, beaches sampled were denoted north, middle, and south in reference to their geographical region on Palm Beach Island. After statistical analysis, the results indicated there was no correlation in the amount of waste found between the different geographical regions. Future studies need to determine if specific waste items are found more commonly on specific beaches.

## Introduction

Medical waste that washes up on beaches used to be of concern in the late 1980s and early 1990s which led to the Medical Waste Tracking Act created in November of 1988. Concern for medical waste greatly decreased throughout the decades but has increased in lower developing countries from lack of improper disposal of the waste. Medical waste can be attributed to public health issues of infections and diseases and is damaging to the environment and overall health ecology.

Beaches on Palm Beach Island, Florida have increased in the incidence of biomedical waste. The purpose of this study was to record the total amounts of medical waste found on Palm Beach Island Beaches between 2018 and 2019. The aim of this project focused on categorizing the different types of medical waste items found and to evaluate any trends between geographical regions visited in relation to the amount of waste collected in the specified region.

## Hypothesis

Out of the medical waste collected, syringes would support the highest amount of waste found and documented. Beaches visited further south in Palm Beach would have higher amounts of medical waste than beaches visited north.

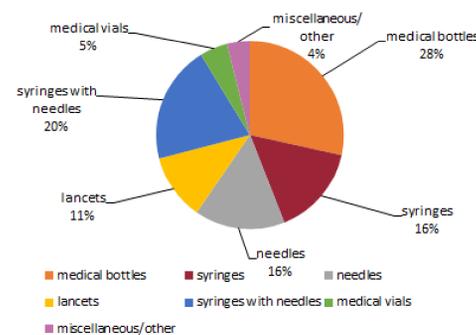
## Methods

- Items were found and collected by the Friends of Palm Beach.
- Found items were brought to Palm Beach Atlantic University where they were recorded in a spreadsheet with the date, location, beach code, item, and item category.
- The name of the beach code refers to geographical regions visited considered north, middle, and south covering an area from north of the Breakers to south of Southern Boulevard on Palm Beach Island.
- Items were separated into categories from the waste that was collected
- Statistical one-way ANOVA test was conducted to analyze trends in the amount of waste collected between north, middle, and south.

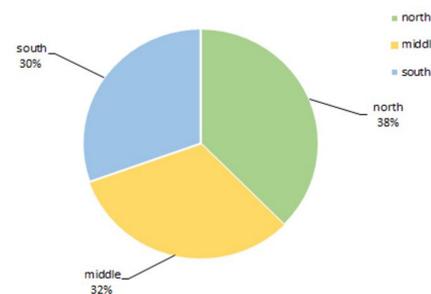


Photos courtesy of the Friends of Palm Beach

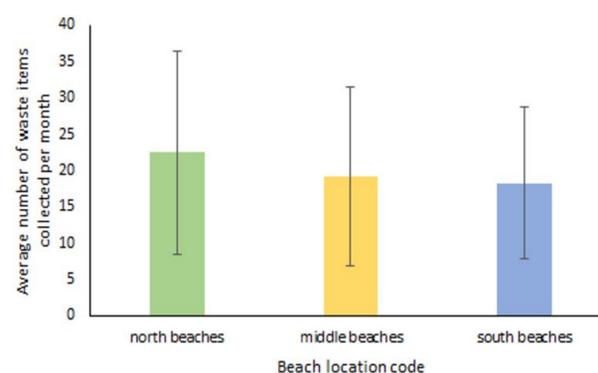
## Results



**Figure 1.** Percentages of the amount of medical waste items documented based on category type in 2018.



**Figure 2.** Percentages of medical waste items collected in different regions in 2019.



**Figure 3.** Mean ( $\pm$ SE) of waste items collected per month in each region.

## Conclusion

- The most common medical waste found was medical waste bottles, but if you combined syringes with and without covers then they were the most common type.
- The amount of medical waste collected was not significantly different between north, middle, and south geographical regions visited in Palm Beach Island.
- Future studies could also be done to determine if certain categorical items are being collected more on north, middle, or south beaches.

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