

# Patient Satisfaction of Delivery Methods and Eco-Friendly Cold Chain Packaging for Medication Deliveries at One Health System Specialty Pharmacy

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## Background

- Many specialty medications are cold chain products that need to maintain a certain temperature at all points of the supply chain process
- Maintaining proper temperature is essential to uphold the integrity of medications
- Conventional delivery methods utilize resources such as cardboard boxes, insulation, and ice packs to guarantee proper storage
- Advancements in cold chain packaging is recommended to minimize the environmental footprint and reduce specialty pharmacy costs

## Objectives

### Primary endpoint:

- To determine if patients were more satisfied with the eco-friendly cold-chain packaging compared to the conventional cold chain packaging


### Secondary endpoint:

- To determine if patients were more satisfied with health-system owned couriers or UPS deliveries

## Methods

- This was a patient satisfaction survey-based project approved by the West Virginia University International Review Board (IRB)
- Patients were retrospectively identified through the sponsoring health system specialty pharmacy's dispensing software
- Eligible patients previously received a delivery of a cold chain specialty medication via two delivery methods:

 Conventional cold chain packaging: individual box with insulation and ice packs

 Eco-friendly cold chain packaging: a reusable, insulated container that stores multiple individually wrapped patient packages

- These patients were further classified into if they had received a delivery using:

 Health system courier

 United Parcel Service (UPS)

- Surveys were conducted via telephone and responses were recorded in a secure electronic survey system

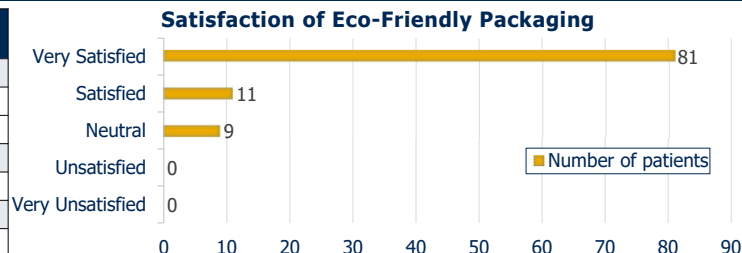
### Survey questions included:

- Demographic information
- Preferred delivery packaging
- Reported reasoning for preference
- Likert scale ranking of satisfaction of eco-friendly packaging
- Preferred delivery method if they had experience with couriers and UPS

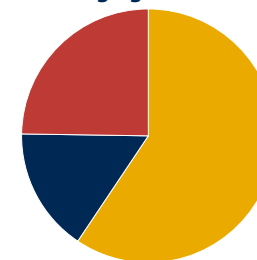
**Table 1: Demographics (n=101 patients)**

| Age (years)                    |            |
|--------------------------------|------------|
| Mean (SD)                      | 51 (9)     |
| Range                          | 20-85      |
| Gender                         |            |
| Female                         | 61 (60.4%) |
| Disease State Category         |            |
| Inflammatory                   | 84 (83.1%) |
| Cardiology                     | 11 (10.9%) |
| Neurology                      | 2 (2%)     |
| Oncology                       | 2 (2%)     |
| Other                          | 2 (2%)     |
| Average distance from pharmacy |            |
| 20 minutes                     | 11 (10.9%) |
| 30 minutes                     | 28 (27.7%) |
| 60 minutes                     | 25 (24.8%) |
| 80 minutes                     | 15 (14.9%) |
| 90 minutes                     | 14 (13.9%) |
| 120 minutes                    | 7 (6.9%)   |
| 150 minutes                    | 1 (1%)     |

## Results



### Packaging Preference



■ Eco-friendly cold chain  
■ Conventional cold chain packaging  
■ No preference

### Packaging Preference Reasoning

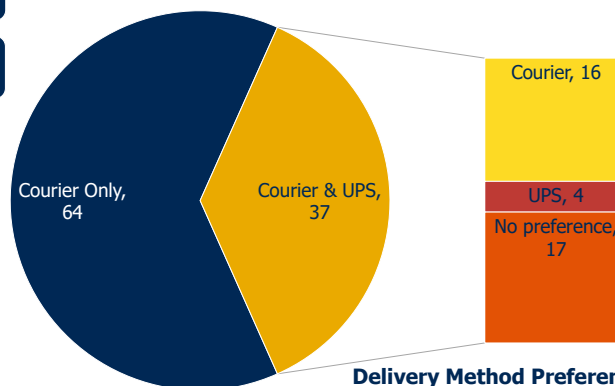
#### Eco-friendly packaging:

- Reduced waste, bulk, and hassle
- Ease of disposal and handling
- Efficient transfer of medication

#### Conventional packaging:

- Flexibility in need to directly accept package
- Ability to reuse packaging materials

## Delivery Method



### Delivery Method Preference

## Conclusions and Discussions

In order to increase specialty pharmacy patient satisfaction, consider:

- Increasing adoption of similar eco-friendly delivery methods
- Utilizing in-house couriers as a delivery system

- Seeking initiative for innovation regarding supply chain temperature management can reduce the environmental footprint while maintaining patient satisfaction
- Further research is needed to demonstrate that eco-friendly packaging may also support pharmacy cost-savings

## References

- Desai, Kashappa Goud, et al. "Comprehensive Temperature Excursion Management Program for the Commercial Distribution of Biopharmaceutical Drug Products." *Journal of Pharmaceutical Sciences*, vol. 109, no. 7, 2020, pp. 2131-2144, <https://doi.org/10.1016/j.xphs.2020.04.006>.
- Calnon, Tyler. "Pharmaceutical Distributors Are at the Forefront of Cold Chain Logistics." *Healthcare Distribution Alliance*, 25 May 2021.