

Introduction



Anticipated chemotherapy preparation:
Pharmaceutical validation and compounding
on Day -1

Cancellation



Return and Reallocation
Stability, dose, storage conditions

Objective: To evaluate the overall impact of the chemotherapy reallocation process:

- Economic impact
- Environmental impact

Materials and Methods

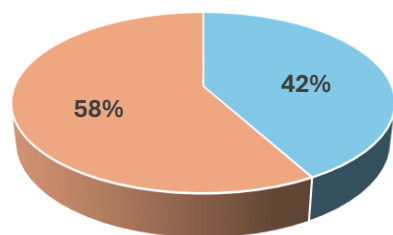
- ✓ **Retrospective study over 5 years (2021-2025)** : number of returned, reallocated and discarded preparations
- ✓ **Economic criteria** : active pharmaceutical ingredient (API) cost per mg, consumables and labor costs, disposal costs (infectious healthcare waste)
- ✓ **Environmental criteria** : carbon footprint (kg CO₂eq) per mg of API (Ecovamed® database) and per tonne of incinerated infectious healthcare waste



Results

2,185 returned preparations out of 124,744 dispensed preparations (1.75%)

Outcome of Returned Preparations



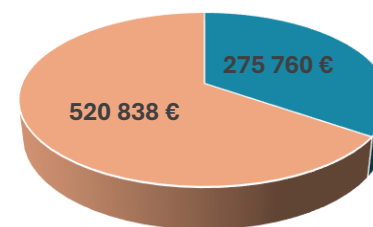
■ Reallocated preparations ■ Discarded preparations

Top 5 most frequently returned drugs:

- Fluorouracil (18%)
- Paclitaxel (15%)
- Oxaliplatin (11%)
- Carboplatin (9%)
- Irinotecan (7%)

Total cost of returned preparations:
€791,867

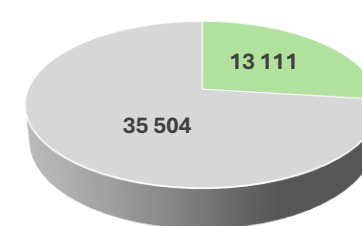
Costs of Returned Preparations (€)



■ costs recovered ■ costs lost

Total carbon footprint of returned preparations: 48,614 kg CO₂eq (equivalent to 23.6 Paris-New York round trips)

Costs of Returned Preparations (kg CO₂eq)



■ Environmental impact avoided ■ Environmental impact lost

Discussion

The reallocation process is an effective strategy to reduce both economic and environmental waste, mainly driven by the carbon footprint of anticancer drugs and waste incineration. It also helps reduce patient waiting times and improves staff satisfaction by maximizing the value of the work already performed. However, strict **reallocation criteria** must be established, and regular **quality audits** should be conducted to ensure process safety and quality.