

# An analysis of the reasons for switching combination antiretroviral (cART) regimens and associated drug wastage

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## Background

There are many reasons for switching cART regimens reflecting clinical need, such as drug toxicity, intolerance, drug resistance, and patient choice. Drug wastage happens occasionally in the HIV clinic however it is difficult to quantify partly because patients do not always return their medicines after they switch treatment.

Pharmacy staff at the Courtyard Clinic, work with prescribers to manage supplies for patients particularly in relation to a planned switch or where it is thought that the risk of switch is highest (e.g. early in the course of a new regimen). 20 years ago, drug returns and wastage from patients' homes highlighted the problem, compounded by frequent hospital admissions and prescription of medication from a number of treatment centres<sup>1,2</sup>. A study in Canada looked at a combination of returned drugs and estimated wastage from pharmacy records which revealed a wastage rate up to 0.89% of total dispensed value<sup>3</sup>.

This analysis attempts to look at the reasons for switch and association with days of treatment wasted and value of these drugs.

## Method

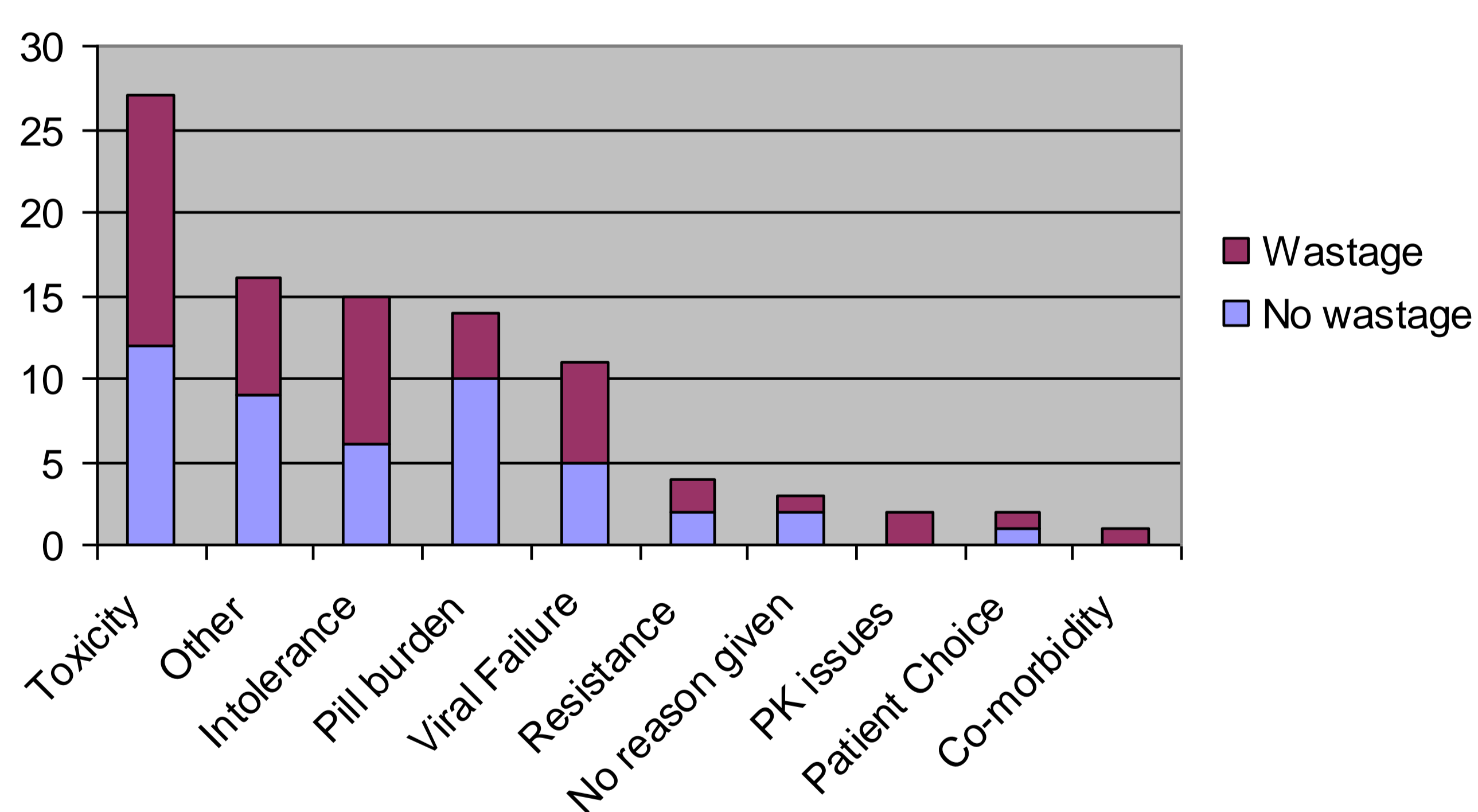
From 1<sup>st</sup> April 2011 to 5<sup>th</sup> January 2012, all patients switching antiretroviral (ARV) medication were identified. Data including patient demographics, reason for switch, drugs involved and time of switch (taken as the day of dispensing) were captured and uploaded on an Excel<sup>™</sup> spreadsheet. It was possible from pharmacy records to calculate how much medication patients had at the time of switch, assuming 100% adherence. Where the predicted end date preceded the day of switch it was assumed that there was no wastage, or that the patient had finished their prior combination and switched without wasting supplies.

The total value of wastage is calculated from the number of days wasted for each ARV preparation multiplied by cost including VAT. Non-antiretrovirals were not included. Wastage rate is calculated as a percentage of the total drug value dispensed to patients in the period 1<sup>st</sup> April 2011 to 31<sup>st</sup> December 2011.

## Results

A total of 97 patients switched cART regimen during the data collection period. Male 46 (47%) Female 51 (53%). Ethnicity: most were Black African 53 (55%), White 29 (30%) Caribbean 7 (7%) and Other 8 (8%). 72 (74%) were heterosexual and 25 (26%) MSM.

Figure 1: Reason for switch and numbers of patients with and without wastage



Overall, there was no wastage in 47/97 (48%) switches, although in 2/97 (2%) cases it was not possible to estimate if wastage occurred or not. Wastage occurred in 48 cases (50%).

There was a median of 25 days of drugs wasted where wastage was identified. There was no significant difference in median days wasted by reasons for switch. Grouping the categories of Toxicity, Intolerance, Resistance and Viral Failure and comparing this with Pill Burden; wastage/non wastage 44/37 vs. 4/10 ( $p = 0.079^*$ ) did not reach statistical significance. \*Fisher Exact test

## Conclusions

- Drug wastage is common but unavoidable in many cases
- Wastage was not associated with reason for switch
- Where Pill Burden was given as the reason for switch, there was a trend for fewer cases of wastage compared to other more urgent reasons for switch
- The majority of the value of wastage occurred beyond the first four weeks of being on a regimen
- Overall wastage rate was low at 0.27% compared to the literature
- Further work is needed to look at predictors for regimen switch

Figure 2: Reason for switch and value of wastage

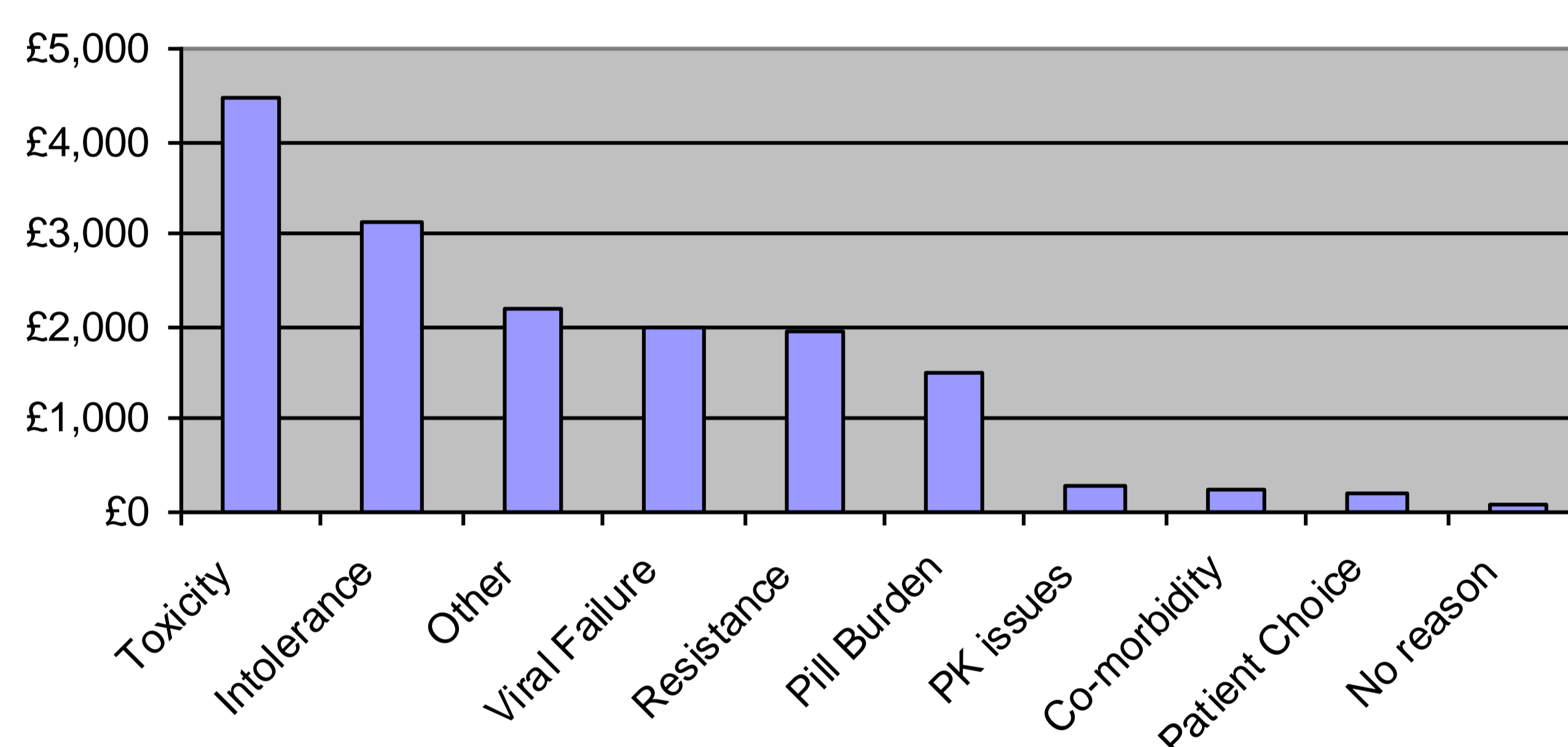
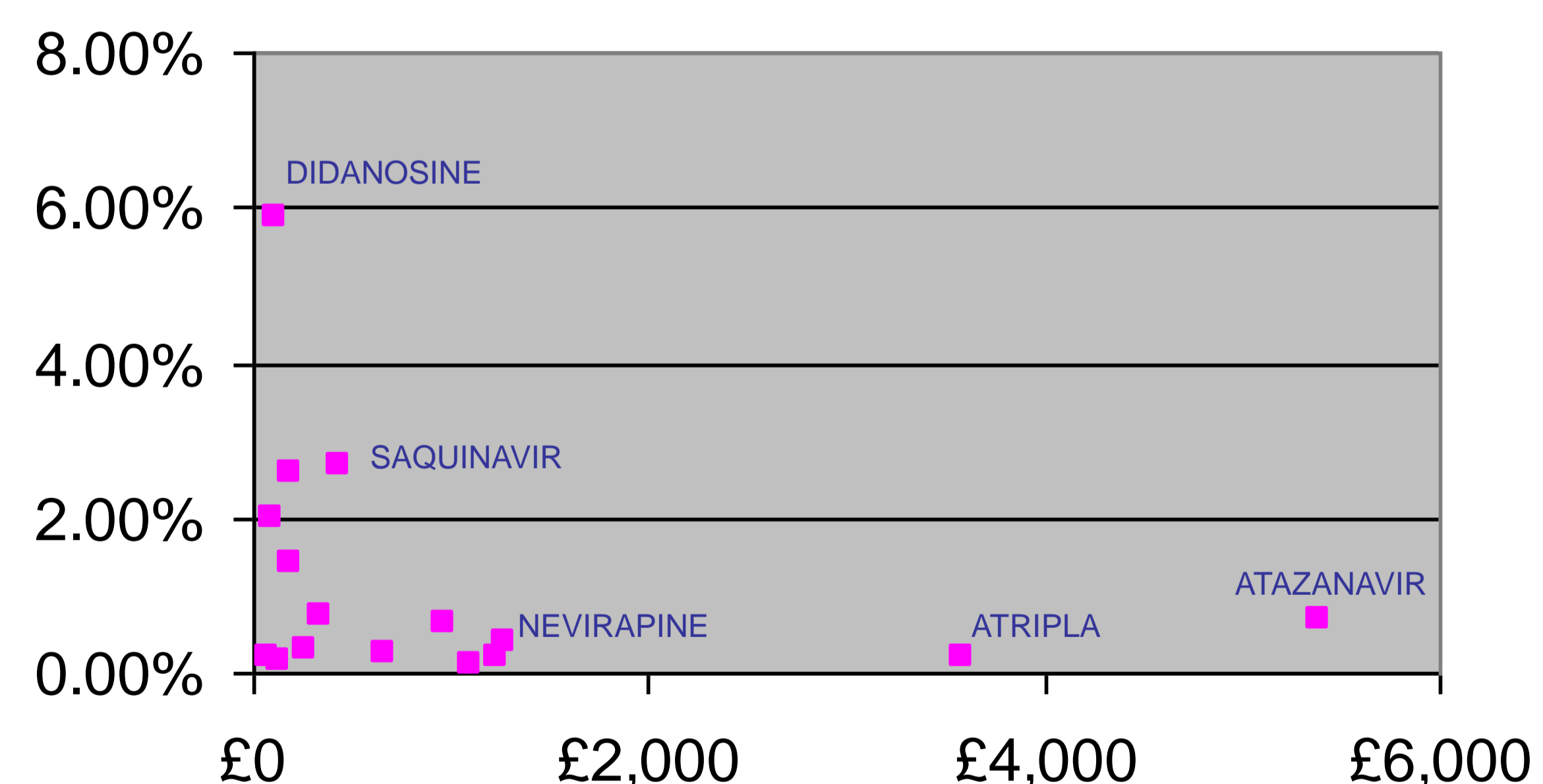


Figure 3: Scatter plot: Value of drug wastage vs. percentage of total ARV spend in study period



The total value of drugs wasted in 97 patients was £16,074. The majority of wastage value £15,114 (94%) occurred beyond the first four weeks of being on a regimen. Wastage rate over the same time period was 0.27% of a £5.88million ARV spend.

## References:

1. Steel S, George R. Wasted drugs in HIV Infection and AIDS. *BMJ* 1992;**304**:123. (11 January)
2. Asboe D, Daniels D, Erskine D, Boag FC. Wasted drugs in HIV Infection and AIDS. *BMJ* 1992, **304**:508-509.
3. Ostrop NJ, Gill MJ. The costs of antiretroviral drug wastage. *AIDS* 2000;**14**(5):616-617.