

# Green Team clinical pharmacy and pharmacology of a university hospital in the Netherlands: Towards sustainable clinical pharmacy.

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## What was done?

The department of Clinical Pharmacy and Pharmacology (CPP) is responsible for providing pharmaceutical patient care to all hospitalised and ambulatory patients of the University Medical Centre Groningen (UMCG) in the Netherlands (NL).

Two years ago, the department has established a Green Team, dedicated to making this pharmaceutical care as sustainable as possible.

## Why was it done?

Healthcare is responsible for an important part of the carbon footprint and medication production and use substantially contribute to this footprint.

## How was it done?

The Green Team CPP started in June 2021 with a brainstorm on potential subjects. The main focus became 'contribution to sustainable medication use and reduction of disposal'. The team consists of representatives of all CPP subdepartments. Proactive measures and projects were defined, but increasingly the Green Team is being consulted by doctors and nurses.

## What has been achieved?

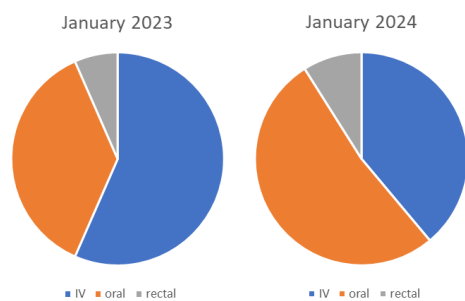
Three projects were conducted:

1. Switching from paracetamol IV to oral/rectal
2. Patient's own medicine use combined with self-administration (POM/SAM)
3. Interviews on oral anticancer drug waste



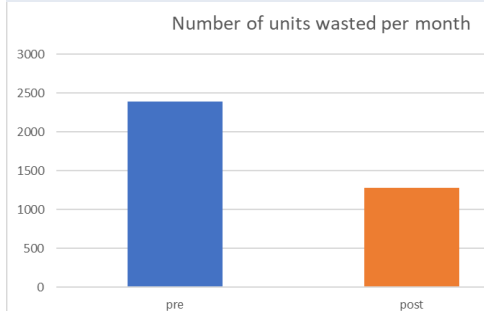
## Paracetamol

Protocol adaptation and presentation in emergency department



## POM/SAM

Pilot in pulmonary department: pre- and post-intervention measurement of medicine waste



## Oral anticancer drug waste

Patient reported waste in 4 interviews 1 month apart  
Extrapolation: €30,000,000.- per year in NL

	Interview 1 (n=40)	Interview 2 (n=35)	Interview 3 (n=31)	Interview 4 (n=29)
Change in medication since last interview?	n.a.	7 (20%)	10 (32%)	12 (41%)
Medication waste in previous month?, yes (%)	9 (23%)	2 (6%)	5 (16%)	3 (10%)
Was the anticancer medication wasted?, yes (%)	5 (12%)	1 (3%)	3 (10%)	2 (7%)
Reason for waste (%)				
- Received too much	2 (5%)	-	2 (6%)	-
- Treatment stopped	3 (8%)	2 (6%)	3 (10%)	2 (7%)
- Dose reduction	1 (3%)	-	-	-
- Medication switch	5 (12%)	2 (6%)	1 (3%)	2 (7%)
- Medication expired	-	-	1 (3%)	-
- Dispensing error	-	-	1 (3%)	-

N.a. Not applicable

## What next?

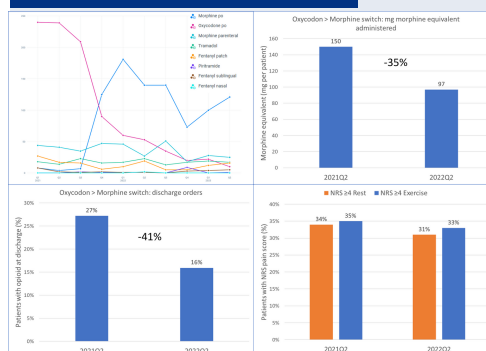
Planned:

1. Expand to other departments and to other IV/oral switches (e.g. premedication)
2. Implement POM/SAM in entire hospital
3. Pilot on re-dispensing of oral anticancer drugs

New projects already performed:

1. Oxycodone - morphine switch
2. Infliximab dosebanding (15% rounding)

## Oxycodone - morphine



## Infliximab

Infliximab dosebanding (15% rounding) was implemented on Nov 30th 2023.

Estimated benefits:

- 220 annual saving of vials
- €83,325.- annual reduction of vial costs
- Streamlining prescribing process
- Streamlining IV admixture preparation

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