

Reducing Medication Waste in Hospitals: Data-Driven Solutions at the Source

Marja Bogaards 1,2 (m.bogaards@haaglandenmc.nl); Minke Jongsma 3; Folkert Botma and Annemiek Zwetsloot 4

The Netherlands: 1 Haaglanden Medisch Centrum; 2 GroenErwt-Transfarmacie; 3 Frisius MC Heerenveen; 4 Panacea Informatics

Why was it done?

A significant % of medication ends up discarded without being used. Due to limited insight into actual medication use, hospitals face challenges in a better understanding of which drugs contribute to waste.

Analyzing hospital data allowed us to gain insight into different aspects of medication waste. Addressing these aspects successfully improved sustainable use of medication.

What was done?

We developed a medication waste dashboard to promote sustainable decision-making across medication policies, procurement, prescribing, distribution, administration, inventory- and waste management.

Relevant data (€, numbers, unit dose):

- medication: oral solids, drug group level (ATC)
- pharmacy: dispensing, distribution
- wards: stock, decentral filling, administration

How was it done?

Hospital pharmacies register all received, dispensed and distributed medication, while nursing staff register medication administrations. The discrepancy between received, dispensed, distributed and administered medication provides useful insight into unnecessary waste.

Trendanalyses of:

- received - distributed (delta 1)
- distributed - administered (delta 2)
- received - administered (total)

What has been achieved?

We integrated dispensing, distribution and administration data into a dashboard, offering real-time visibility at the drug group, organizational, departmental and ward levels.

This tool allows our multidisciplinary team to conduct trend analyses and implement greener practices. Additionally, these data supports effective management during drug shortages and provides critical insights into missing opioids.

Data-driven focus on:

- TOP-10 of waste (high numbers or high value)
- Adjustment possibilities (inventory or therapeutic)
- hot spots of waste (specific stock, wards or processes)
- blind spots in the processes (as needed, early discharge)
- root cause analyses of waste
- system leaks

What next?

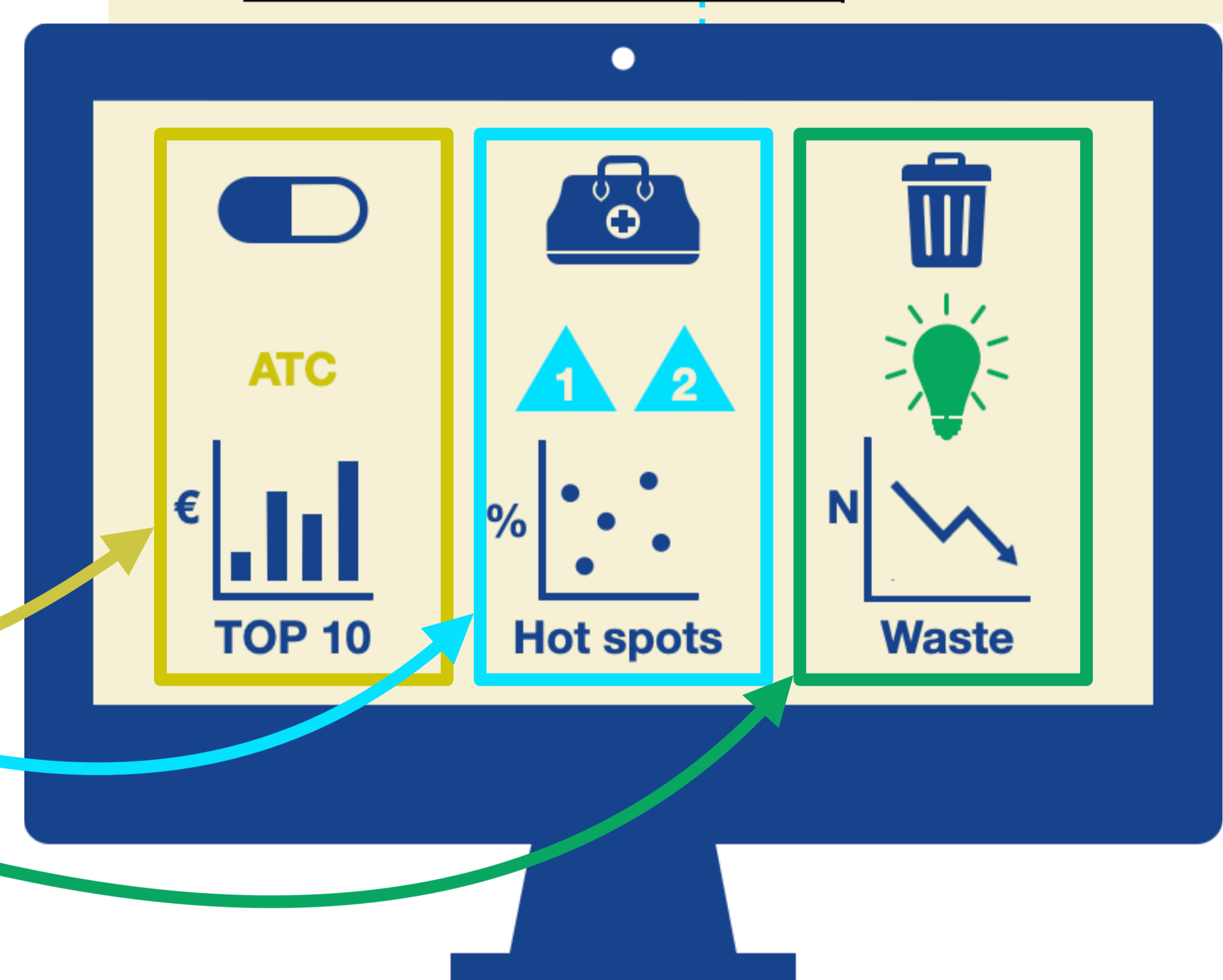
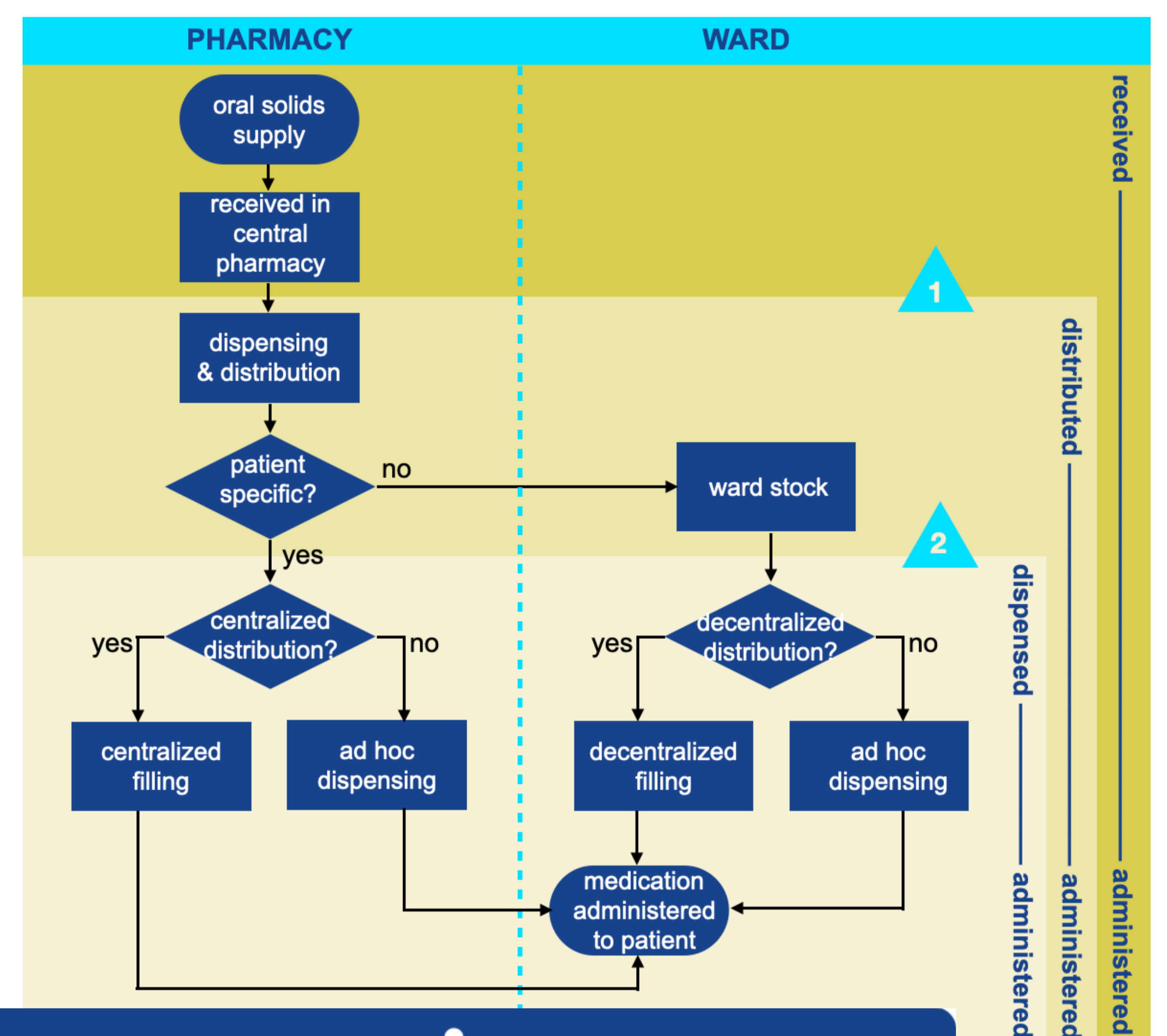
Utilizing data allows us to retrospectively analyze trends and project future scenarios, unlike traditional waste-bin audits.

This data-driven approach empowers us to make proactive adjustments, guiding hospitals toward long-term medication waste reduction and facilitating benchmarking across healthcare institutions.

Finally we like to come to an as low as reasonable acceptable % waste.

STEP-BY-STEP PLAN

- + Visualise logistic model
- + Development generic dashboard
- + Trendanalysis and validation
- + Benchmark between hospitals



KEY OUTCOMES

- + Medication waste reduction
- + Inventory management tool
- + Identification waste hot spots
- + Definition reasonable acceptable % waste

Acknowledgement

Maaïke Rutten and Lisa Marie Smale for the initial validation of the dashboard in the hospital pharmacy of Erasmus MC. This project is realised by a multidisciplinary team of hospital pharmacists, transition- and ICT-consultants in order to improve the sustainability in healthcare.

SPD50186 - EAHP 2025

