

Medication waste in a hospital setting

Counts, concerns and considerations

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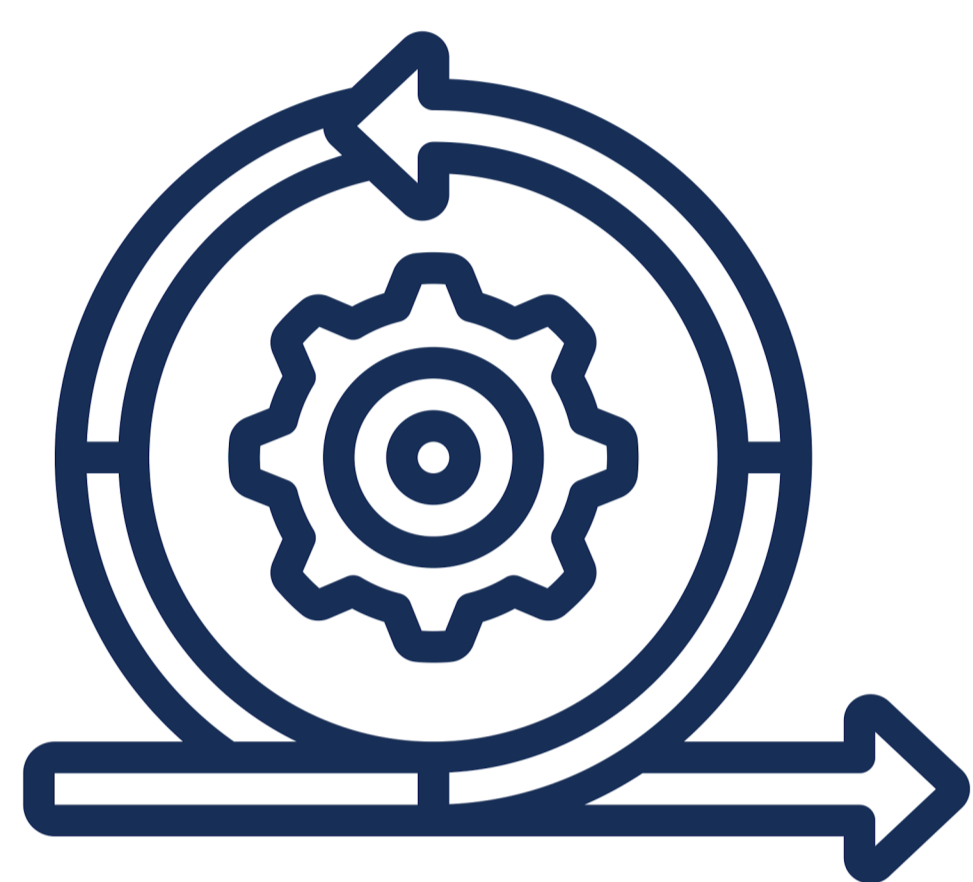
Introduction

The use of medication relates to almost 1/5th of the total CO₂ emission emitted by the public health sector and 2/5th of all resources used in public health.

Besides unnecessary costs, wasting unused medication has an enormous ecological impact. Each link in the chain of medication production and distribution contributes to the negative environmental impact. Unfortunately, data regarding medication waste in Dutch hospitals is not yet generally available. We analyzed the stream of medication waste (discarded medication related to dispensed medication in %) in our hospital and tried to reduce this by addressing the main causes. Returned medication was counted on 9 separate days (within a 1 month period), results were extrapolated to 1 year. <https://pubmed.ncbi.nlm.nih.gov/36495889/> and <https://pubmed.ncbi.nlm.nih.gov/36633070/>

Method

Our medication distribution process



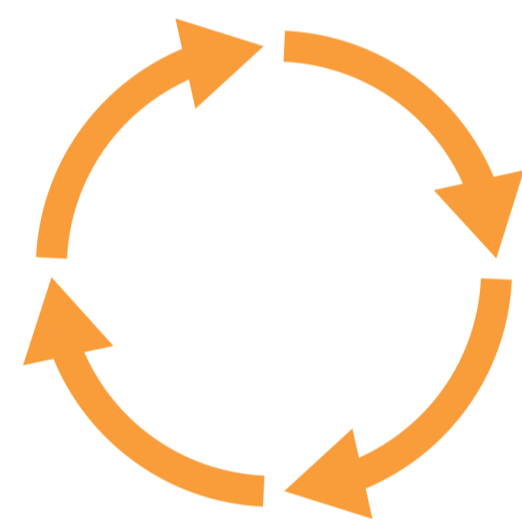
Inpatient prescription

Medication dispensed per patient per 24h

Return of unused medication

Medication redispensed or discarded

Counts



Process

- 27.9% of dispensed medication is returned to the hospital pharmacy ($\pm 2.4\%$)
- 23.3% of dispensed medication is discarded as medication waste ($\pm 3.1\%$)

Costs

- 87.500 units discarded
- € 20.000 purchase costs
- € 21.000 process costs

Environment

- 3.000L of medical waste bins
- 500+ kg of wasted resources
- CO₂ emissions generated by waste incineration

Considerations

- 83.5% of the returned medication was discarded, causing medication waste (probably largely avoidable).
- The largest contribution to medication waste (in volume) was caused by medicines with the lowest financial impact.
- Addressing the causes of medication waste not only resulted in saving costs and staff deployment, but most importantly, in large amounts of resources (API's, recipients, packaging).
- Monitoring medication waste by using corresponding real time hospital data will enable users (nurses, prescribers) to critically view and when possible adjust their process in order to further prevent avoidable wastage of medication.

Concerns

- Production of pharmaceuticals requires a significant amount of resources.
- Preventing wastage is essential in view of the current climate crisis.
- Pharmaceutical care should not only include patient health but also planetary health.
- As hospital pharmacists, we have the responsibility to avoid wastage of limited resources by reducing medication waste to an absolute minimum.



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