



# TINOS 2015

3rd INTERNATIONAL CONFERENCE  
on Sustainable Solid Waste Management

## Pharmaceutical waste disposal in Portuguese households

J Vaz<sup>1</sup> , S Valente, C. Dias-Ferreira<sup>2</sup>

<sup>1</sup> ECOGESTUS Lda, Waste Management Consulting, 3080 328 Figueira da Foz Portugal  
joao.vaz@ecogestus.com

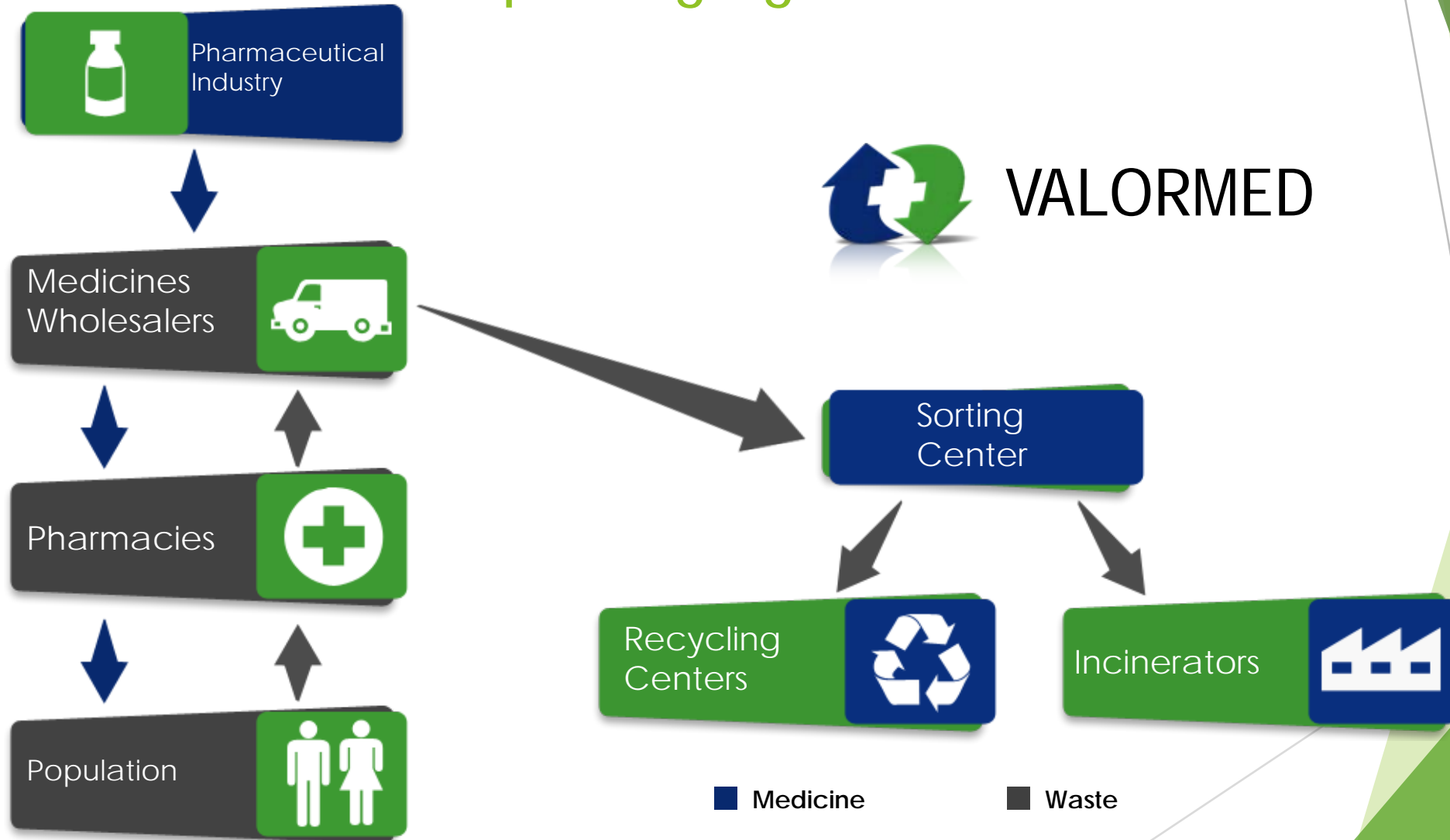
<sup>2</sup> Research Centre for Natural Resources, Environment and Society (CERNAS), ESAC,  
Polytechnic Institute of Coimbra, Bencanta, 3045-601 Coimbra, Portugal



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# Management of Medicine Waste and their packaging





# Why an autonomous system for the collection and treatment of waste medicines?

UNUSED AND EXPIRED MEDICINES REQUIRE A SAFE COLLECTION PROCESS, AVOIDING:

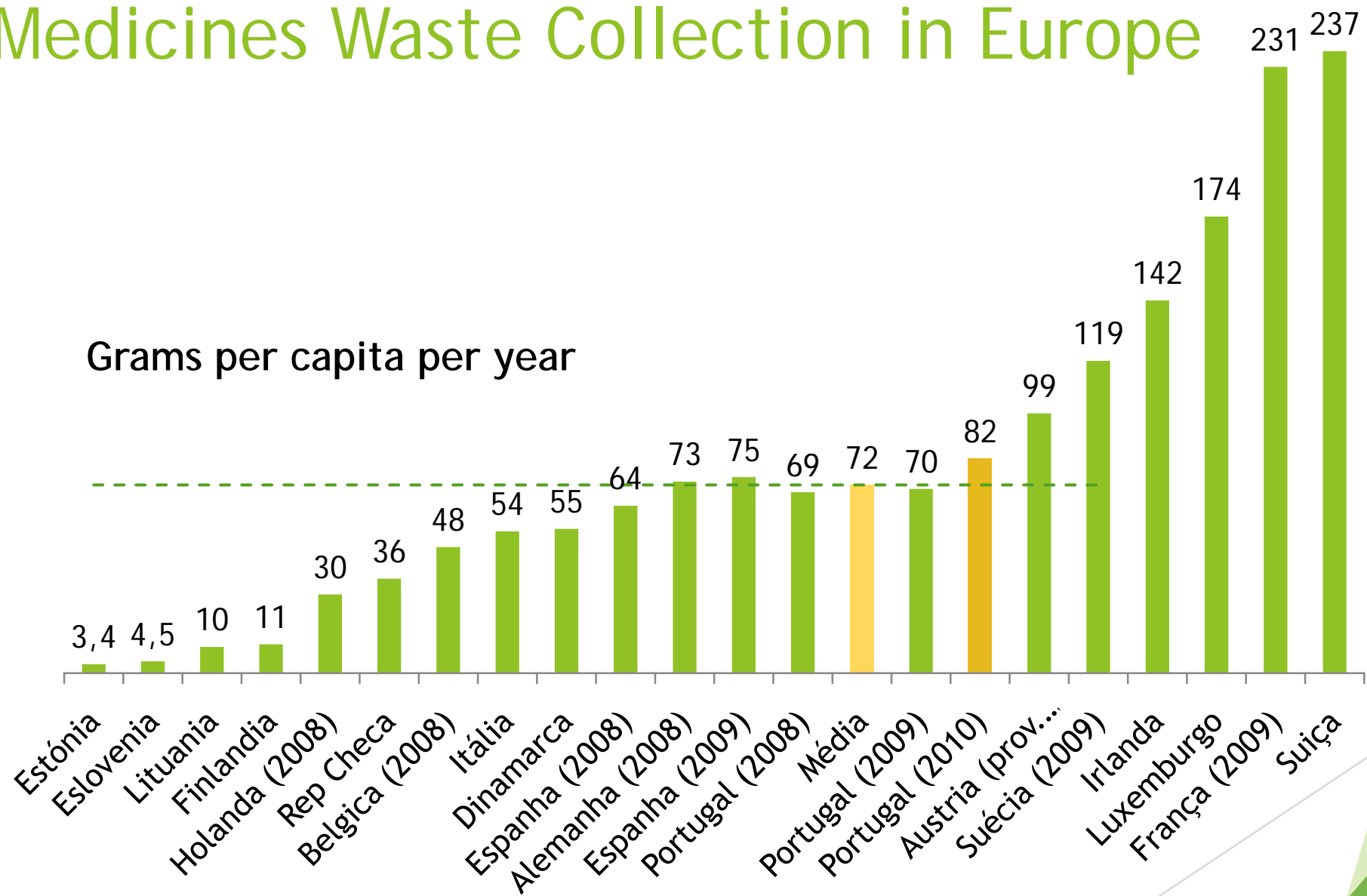
- ▶ Contamination when the waste medicines are released into the environment
  - ▶ together with household waste
  - ▶ WC and sanitation to the wastewaters.
  - ▶ Wastewater treatment plants are not efficient enough to destroy medicine waste
- ▶ Unused medicines should not be "accessible" to children as any other household waste

- ▶ **VALORMED** IS RESPONSIBLE FOR THE MANAGEMENT OF PACKAGING WASTE AND DISCARDED MEDICINES In Portugal since 1999

In Europe a few companies are acting as VALORMED in these field, e.g.:

- ▶ SIGRE (SPAIN) - SYSTEM implemented since 2001
- ▶ Cyclamed (FRANCE) - system with more than 20 years of implementation

# Medicines Waste Collection in Europe



# The problem...

- ▶ Amount of medicine waste and packaging collected is low compared to the amount of waste medicines expected to arise, considering the amounts sold.
- ▶ It is important to find out what is currently happening to this waste, namely:
  - ▶ If it is being stocked by the families
  - ▶ How much is taken back to the pharmacy and how much is disposed differently

# The goal...

Find out how medicines and their waste are managed  
at household level in Portugal

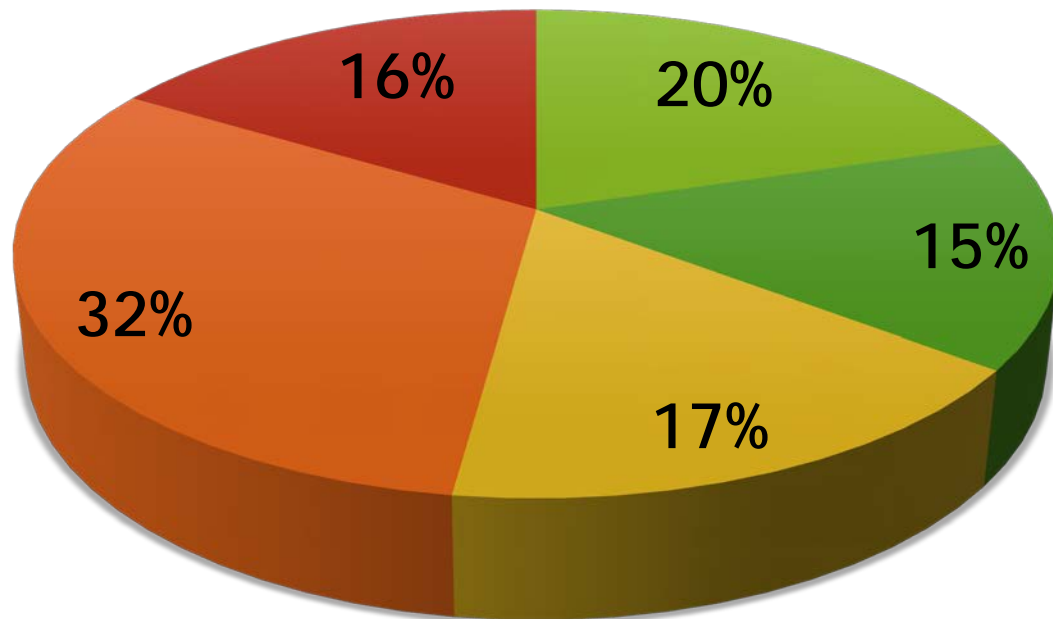
- ▶ What is the perception of families on the hazardousness of these materials
- ▶ How are medicine's waste disposed/discarded
- ▶ How much of such waste is arising at household level



# Material and methods

- ▶ Selection of families participating in the study
- ▶ Training session for developing of the interviewers' skills (last week of Aug 2014)
- ▶ Individual visit to each family (Sept - Nov 2014)
  - ▶ face-to-face interview on the practices followed by the family
  - ▶ Measuring and weighting the medicines kept at home by the families

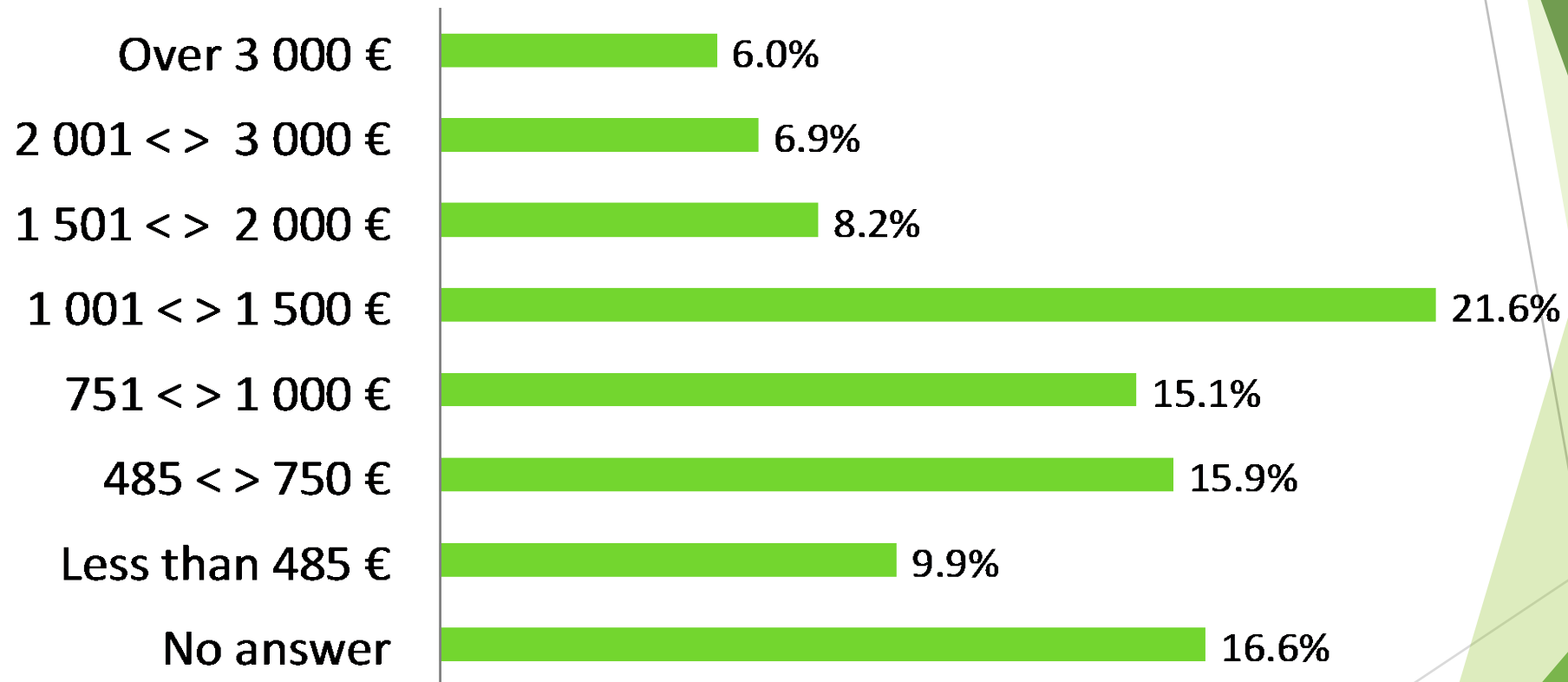
# Material and methods: family structure



- Couple (or single) >65
- Couple (or single) < 35 without children
- Couple (or single) with children under than 12
- Couple (or single) with children over 12
- Couple (or single) 35<> 65 without children

To build the groups variable such as age and the presence of children in the family structure were considered, as these potentially affect household practices

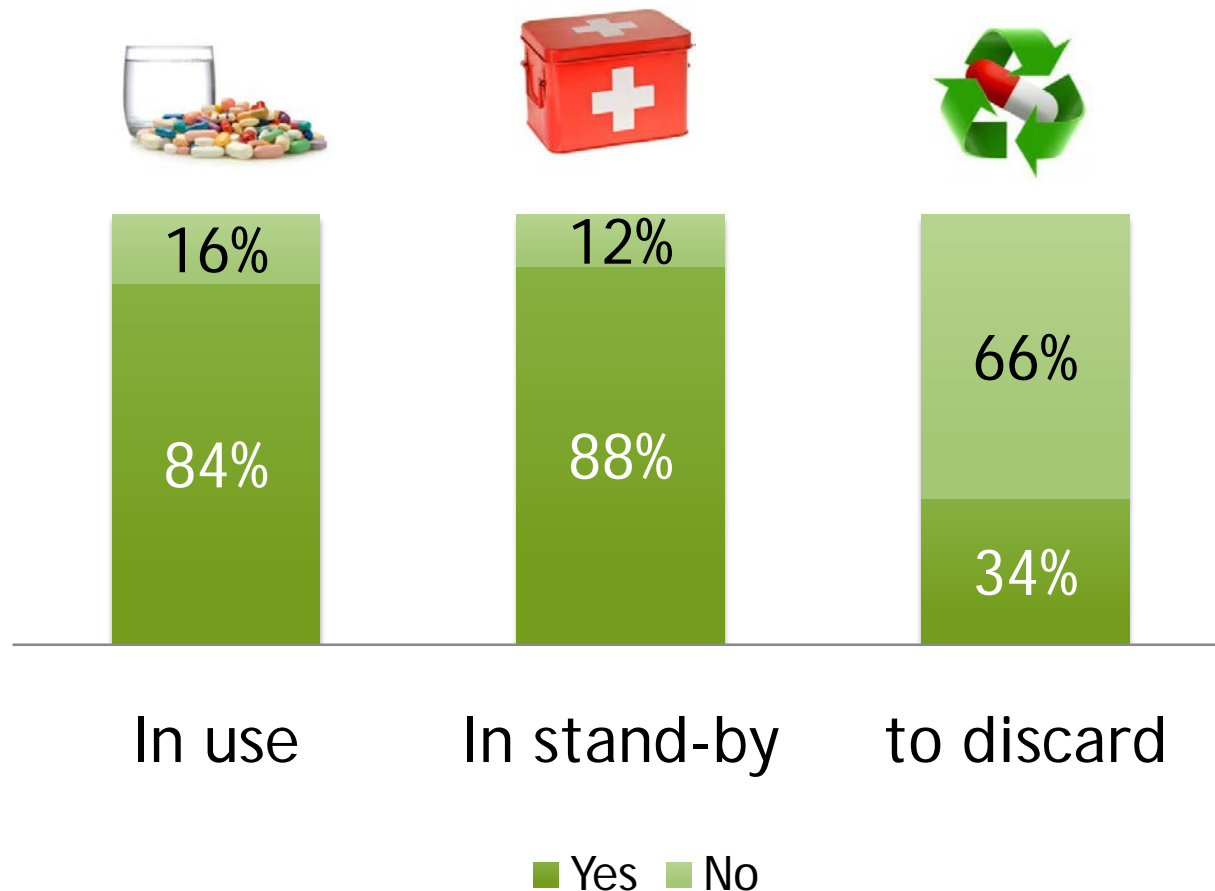
# Average household monthly income



In addition to the family structure, the variability of the monthly income of the family indicates that the families taking part of this study come from relevant different socio-economic settings

Results...

# Presence of medicines and related waste



Strong and generalised presence of medicines in the domestic framework of portuguese families

- ▶ 84% of families has medicines currently being used
- ▶ 88% of families keeps medicine not being used
- ▶ 1/3 of families keep waste medicines in storage, waiting to be discarded

# Amount of medicines kept at home



**In use**

84 g



**In stand-by**

787 g

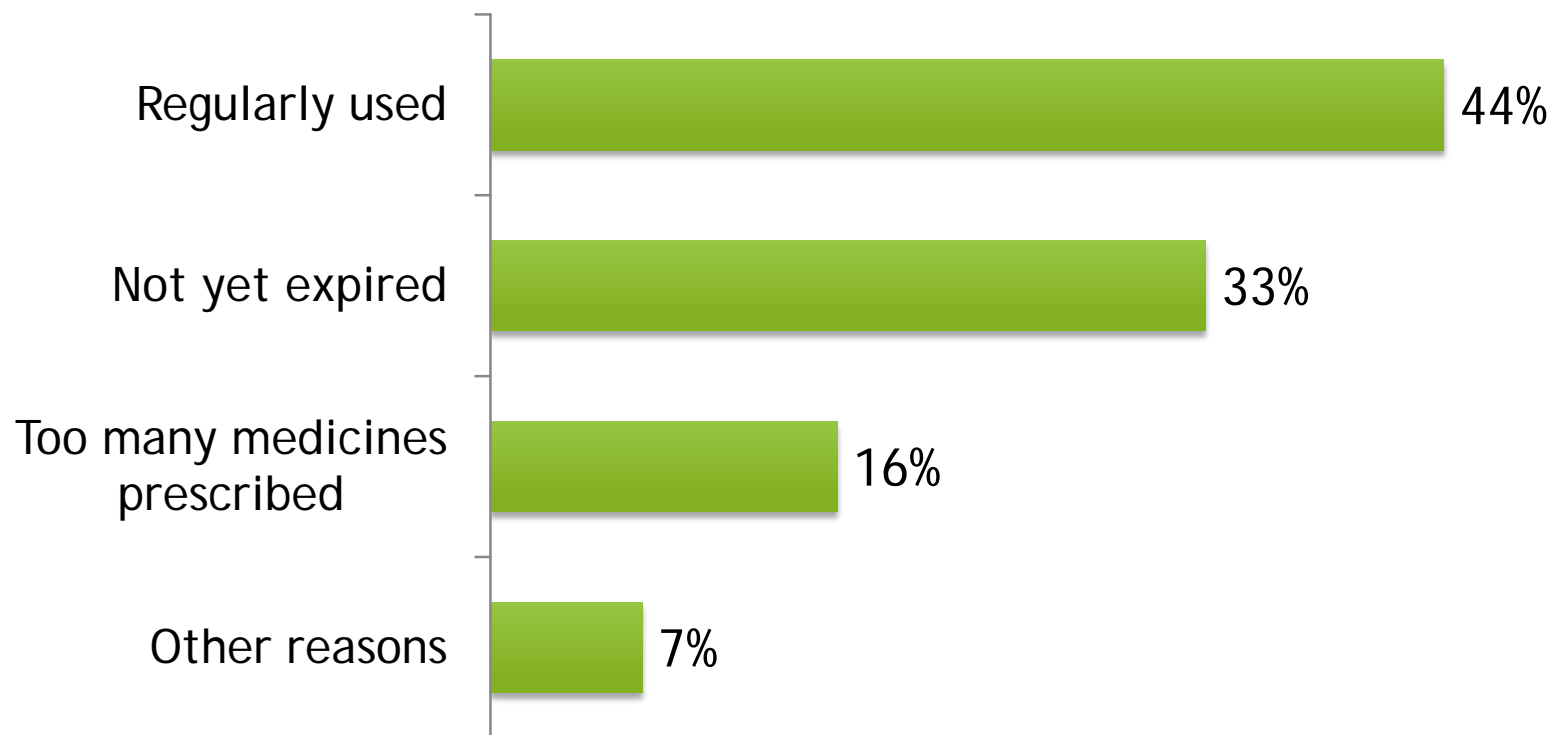


**to discard**

215 g

- ▶ On average **1018** g of medicines are kept at home by each family
- ▶ Detailed analysis considering family type (full article)

# Why medicines not in use are kept at home

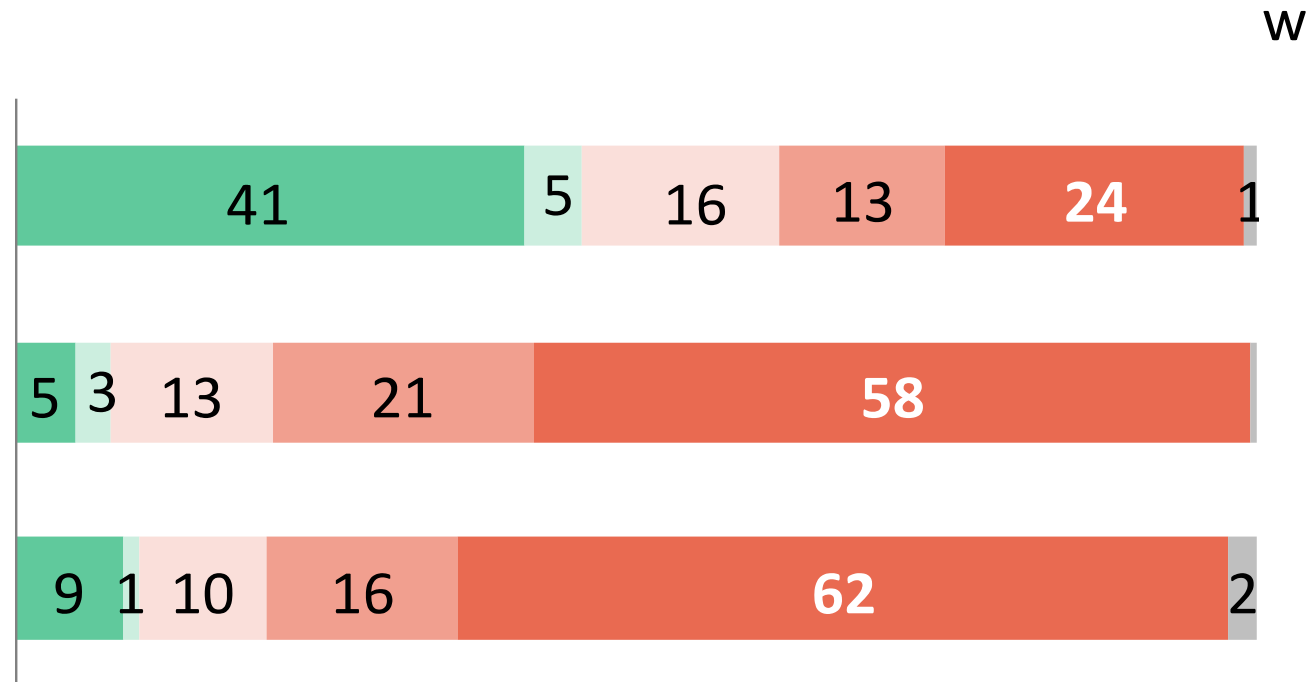


- ▶ The main reason is the foreseen use in the near future
- ▶ The second main reason is the expiry date not been reached. So medicines are kept, even if no future use is foreseen.
- ▶ 16% of the interviewed refer that the doses sold are too large for their needs, so the remaining medicines are not used.

# Risk perception

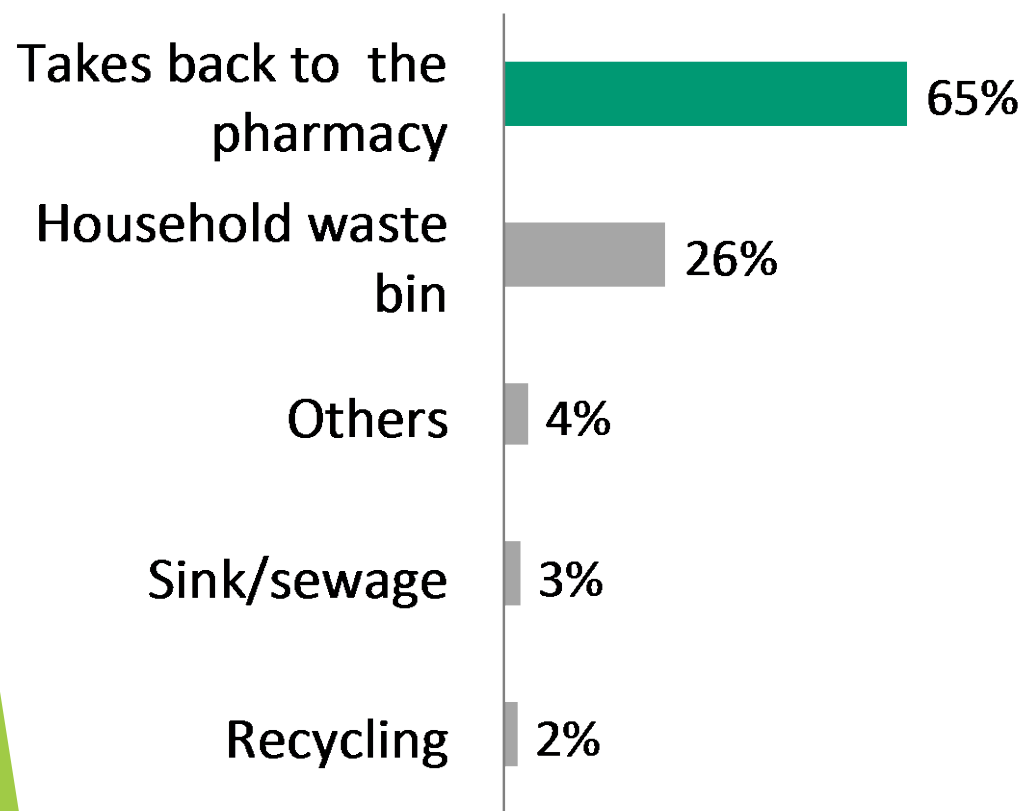


scale 1 (not dangerous at all) to 10 (extremely dangerous)





# Waste medicine and their package where to?

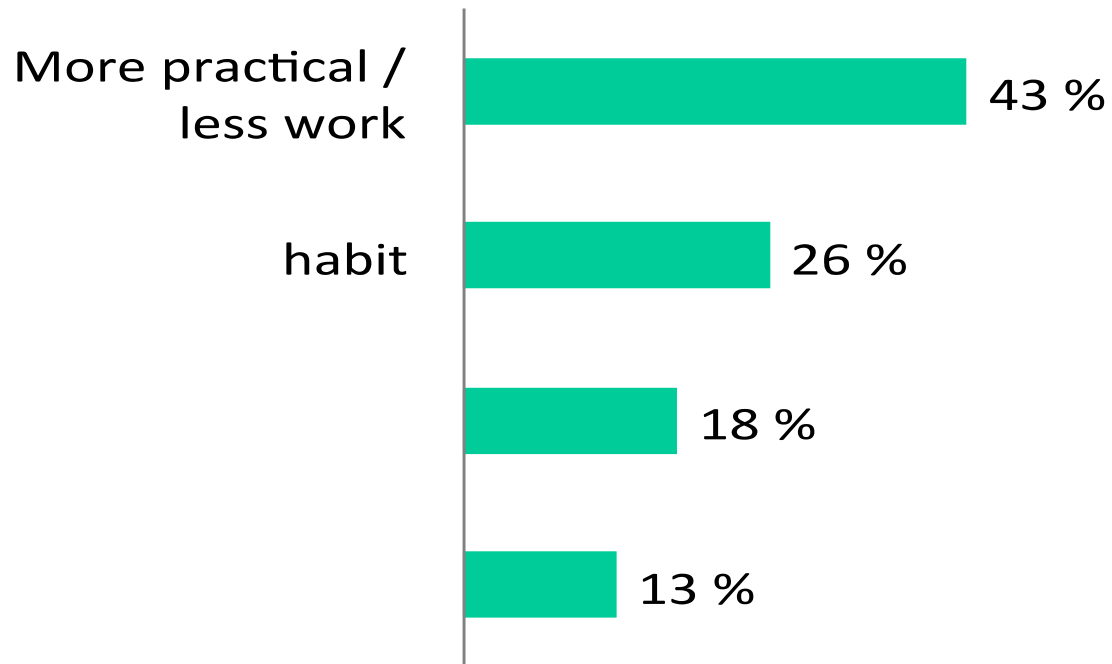


- ▶ 65% declares taking medicine waste back to the pharmacy

there is probably a “right answer” effect: People are aware that taking medicines back to the pharmacy is the “right thing to do”, even if in practice they behave differently.

- ▶  $\frac{1}{4}$  declares throwing medicine waste into the household bin
- ▶ Only very few answers state to discard medicines down the drain/toilett
- ▶ The recycling relates mostly to the separate collection of packaging waste

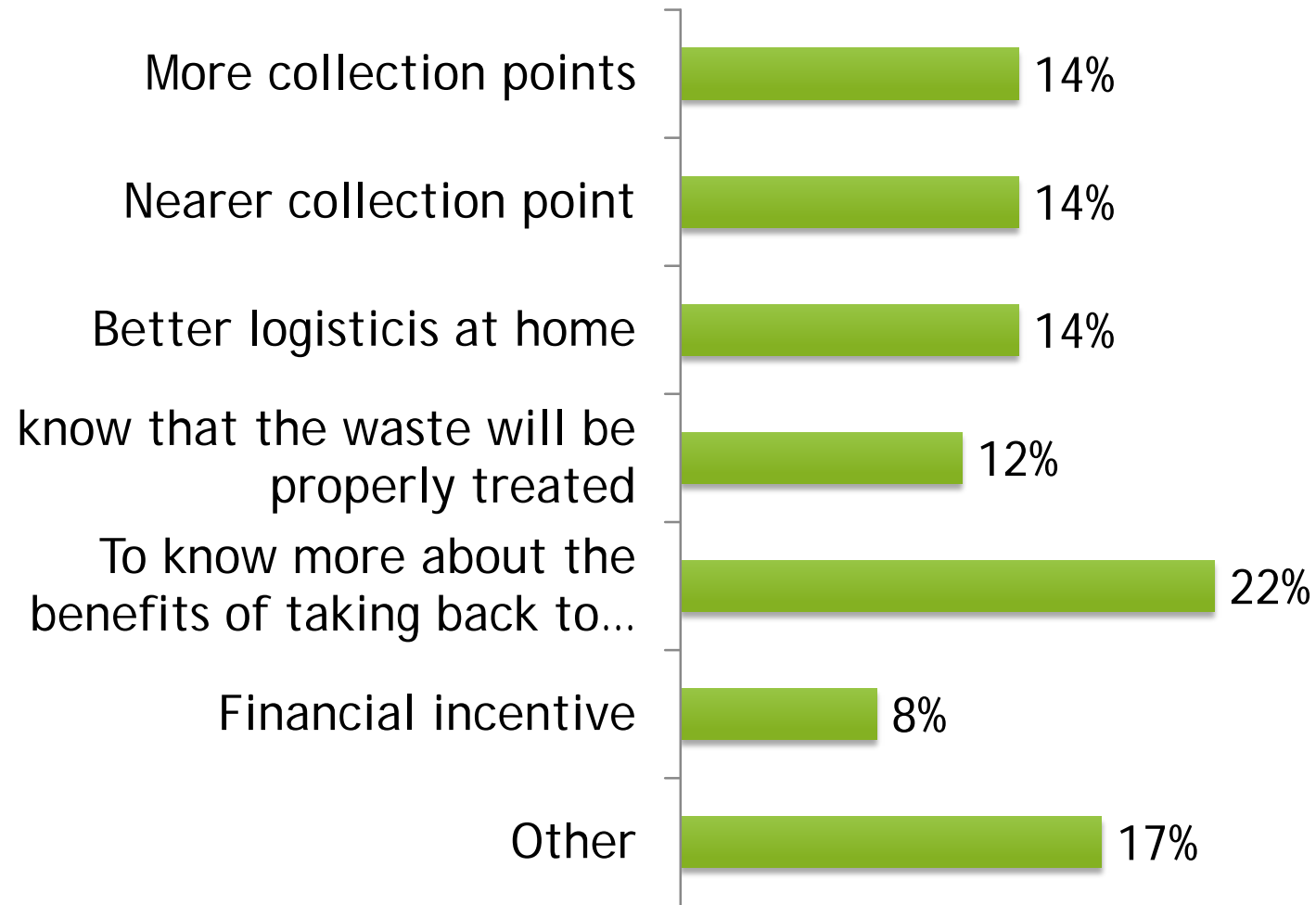
# Reasons for selecting other disposal pathways



75 families do not take medicine waste back to the pharmacy

- ▶ 10 families do it because they think it is "the right way" .
- ▶ The remaining 65 families do it even though they perceive it as not being adequate.
- ▶ The main reasons are "less work" and "habit" .

# What would it take for you to start taking medicine waste back to the pharmacy?



# Summary

- ▶ Amount of medicine waste and packaging collected is low compared to the amount of medicines expected.
- ▶ Families are stocking unused medicines at home (800g out of 1kg)
- ▶ At least 35% of the families do not take medicine waste back to the pharmacy, mostly due to habit or practicality, even though they perceive the behavior as not adequate
- ▶ 26% still place medicine waste together with the household waste, and so medicine will appear downstream in the waste treatment facilities and in the waste derived products (e.g. compost)

# Acknowledgments

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# Thank you !

João Vaz (Environmental Eng.)

[joao.vaz@ecogestus.com](mailto:joao.vaz@ecogestus.com)

Susana Valente (Sociology)

[valente.susana@gmail.com](mailto:valente.susana@gmail.com)

C. Dias-Ferreira (Environmental Eng.)

[celia@esac.pt](mailto:celia@esac.pt)

