



Minimizing the Ecological and Economic  
Burden of Medication Waste in Europe  
Brussels, June 26th, 2025

# Lessons Learned in the Pan-European Study on Medication Usage and Disposal

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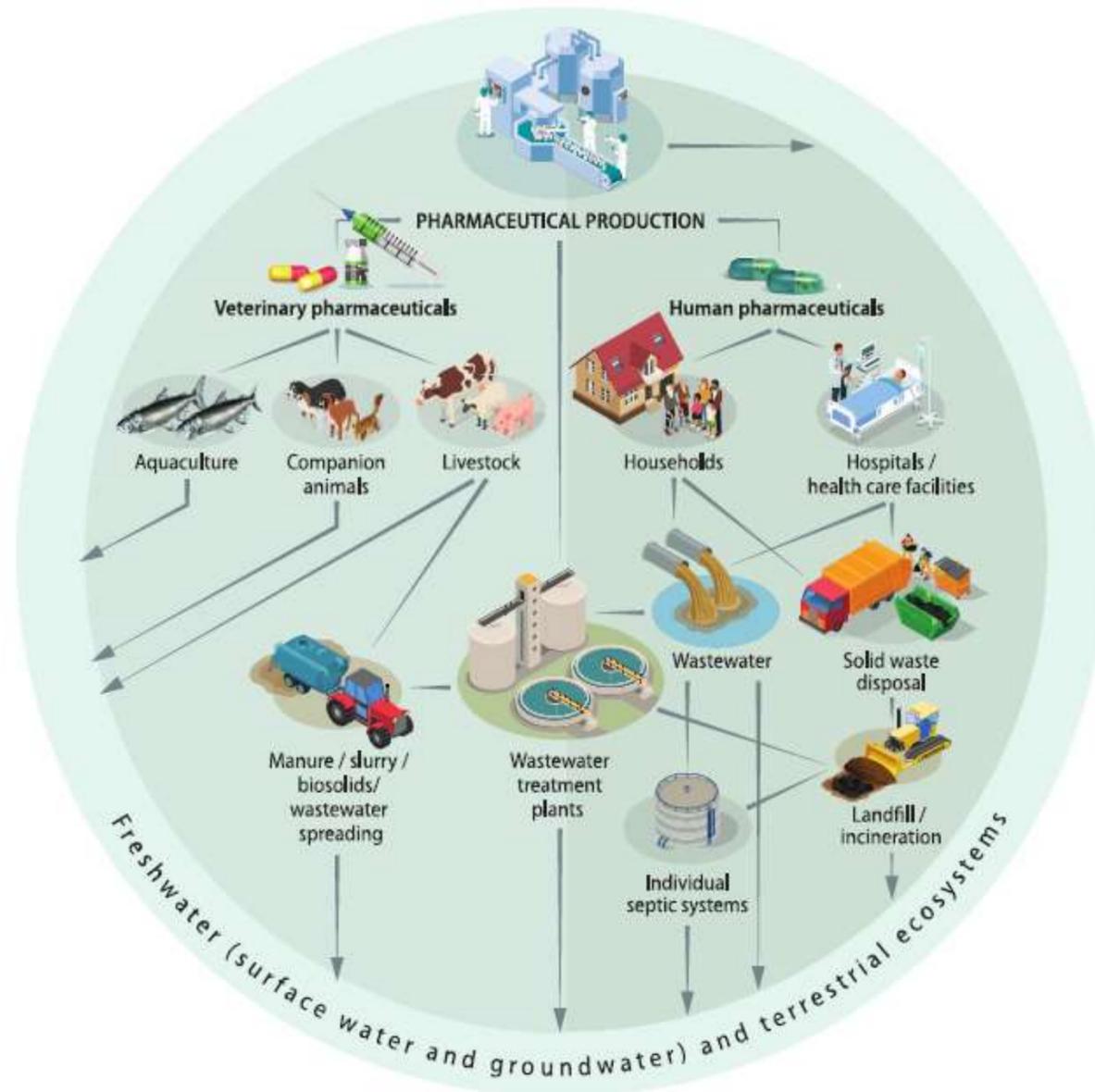


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# Introduction: Pharmaceuticals and environment

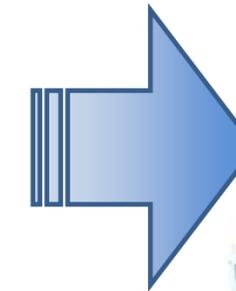
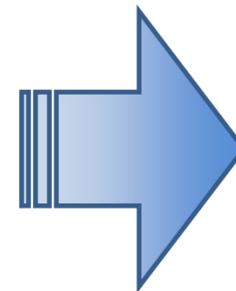
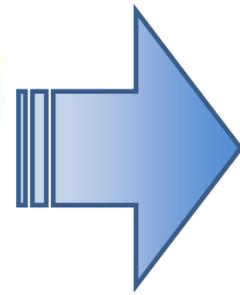


Source: OECD. *Pharmaceutical Residues in Freshwater: Hazards and Policy Responses*, OECD Studies on Water, OECD Publishing, Paris, 2019. <https://doi.org/10.1787/c936f42d-en>.



# Introduction:

# Unused and Expired Household Medications

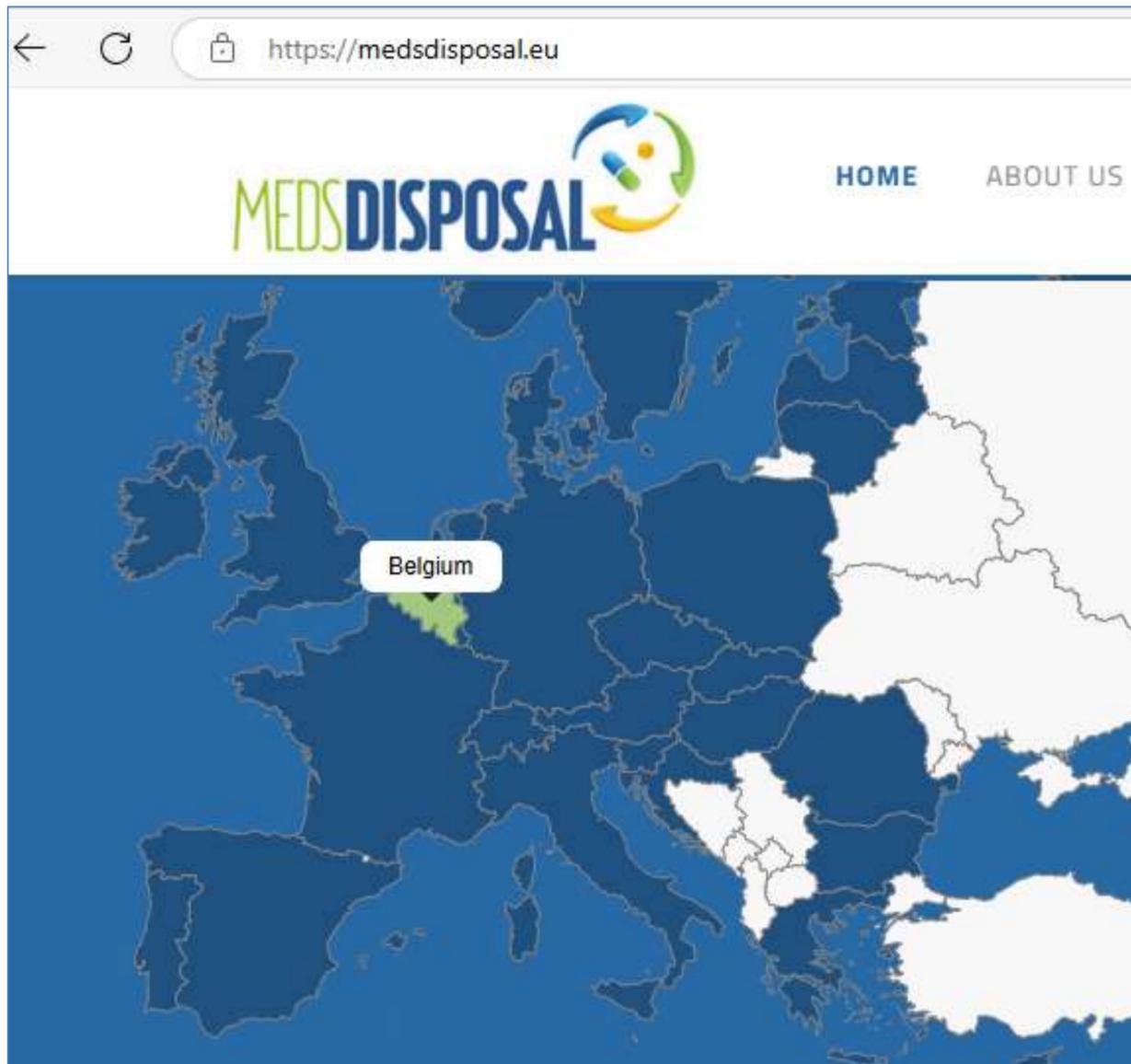


- Change of therapy
- Non-adherence
- Death



# Introduction:

# Disposal of Unused & Expired Medications



Pharmaceutical waste (both human and veterinary) should be returned exclusively to community pharmacies. The outer box and paper leaflet should be removed and disposed of according to normal waste management schemes. This applies also to empty glass bottles and blisters. Used needles and sharps should be collected in a syringe container (for sale at community pharmacies) and should be collected in the municipal container park as biohazard waste

Link : [joint initiative on medicines take back in Belgium](#)





# Introduction: Good practices exist...



Aktualności KulturaBB

AKTUALNOŚCI

## Przeterminowane leki: dziesięć ton

KABE 18 STYCZNIA 2025



WWW.RADIOEM.PL ▶ GLIWICE: ZEBRANO 11 TON PRZETERMINOWANYCH LEKÓW  
**Gliwice: zebrano 11 ton przeterminowanych leków**  
11 ton przeterminowanych leków oddali w minionym roku  
podsumowały zbiórkę i ogłosily sukces.

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Agata Nurek /Radio eM

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Kosz na przeterminowane leki

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### Wpływ niewłaściwej utylizacji leków na środowisko

Mała pigułka wygląda niegroźnie. Jednak jeśli jest ich tona, stanowią poważne zagrożenie dla środowiska naturalnego.

Już od wielu lat eksperci są zgodni, że bardzo ważnym zanieczyszczeniem środowiskowym są leki. Od

### Fakty

Firma PROEKO, utylizuje rocznie około 165 ton leków. Łatwo więc wywnioskować jakie może być to przełożenie na skalę krajową. Są to miliardy złotych. Niewątpliwie największa ilość leków odbierana jest z regionu województwa mazowieckiego. Przyczyną najwyższego poziomu na tym obszarze kraju jest zapewne lokalizacja największych hurtowni farmaceutycznych- właśnie na Mazowszu. Niepokojącą informacją jest fakt, iż tendencja ilości odbieranych przez nas leków cały czas rośnie. Z roku na rok wskaźnik ten zwiększa się o ok 15-20%, w roku 2007 było to około 98 Mg; 2008 - 120Mg; 2009 - 165 Mg (Mg=MegaGram=Tona). Niszczone są leki ze wszystkich grup. Najmniej utylizujemy leków cytostatycznych oraz cytotoksycznych - zdarzają się one sporadycznie. Najczęściej leki do utylizacji oddają hurtownie farmaceutyczne oraz apteki. Hurtownie i producenci to około 90% naszych Klientów, apteki stanowią 10%. Najczęściej są to leki po terminie przydatności. Czasami zdarza się jednak, że trafiają do nas leki pełnowartościowe, które nie zostały dopuszczone do sprzedaży. Duża ilość akcji marketingowych połączonych z reklamami w mediach, które promują farmaceutyki, również nie sprzyja powstrzymaniu problemu. Ludzie na każdym kroku, kuszeni są coraz to lepszymi ofertami. Lepszymi pod względem ekonomicznym ale nie ekologicznym.

Aleksandra Potrykus, prezes Polskiej Grupy Recyklingu PROEKO

- Expired medications should be disposed of at pharmacies or Municipal Waste Collection Centers.
- There are 61 medication collection points in Lublin.
- The containers (so-called “confiscation containers”) are provided by the municipality as well as in other cities.
- Medications can also be dropped off at pharmacies.
- Residents dispose of approximately 10 tons of expired medications annually.
- In 2025, the cost of managing the collection will amount to around PLN 14,000 per ton.
- DISPOSAL COST: PLN 14,000 per ton.

Source: [https://lubbie.pl/aktualnosci/przeterminowane-leki-dziesiec-ton-rocznie?utm\\_source=chatgpt.com](https://lubbie.pl/aktualnosci/przeterminowane-leki-dziesiec-ton-rocznie?utm_source=chatgpt.com); January 18, 2025



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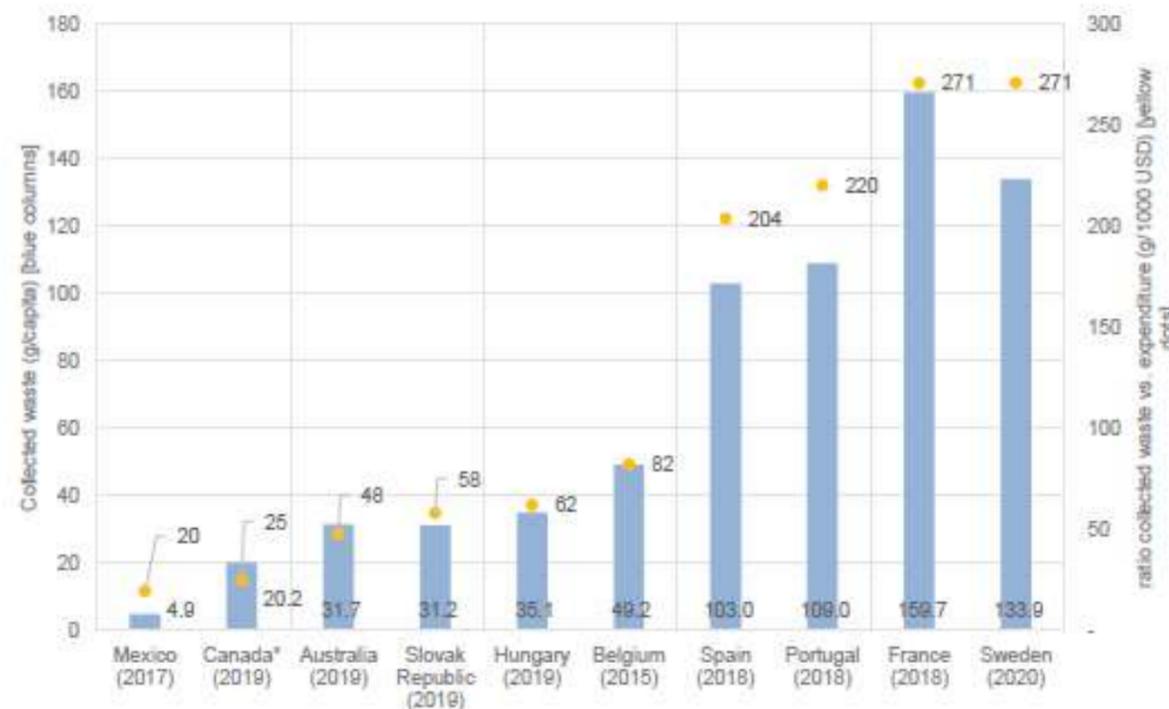
MEDICAL UNIVERSITY OF LODZ



# Introduction:

## Major collection gaps exist also...

Figure 4.2. Per capita collection rates of pharmaceutical waste in selected OECD countries [g/capita] (blue bars), compared to expenditure (yellow dots)



Source: OECD. (2022) Management of Pharmaceutical Household Waste.  
[https://www.oecd.org/en/publications/management-of-pharmaceutical-household-waste\\_3854026c-en.html](https://www.oecd.org/en/publications/management-of-pharmaceutical-household-waste_3854026c-en.html)

### Calculation for Poland (per year):

#### Estimated Waste Generation:

38 million citizens × 0.3 kg/person = **11,400 tonnes**

#### Estimated Collection Rate:

16 regions × approx. 100 tonnes = **~1,600 tonnes**

#### Estimated Gap in Collection:

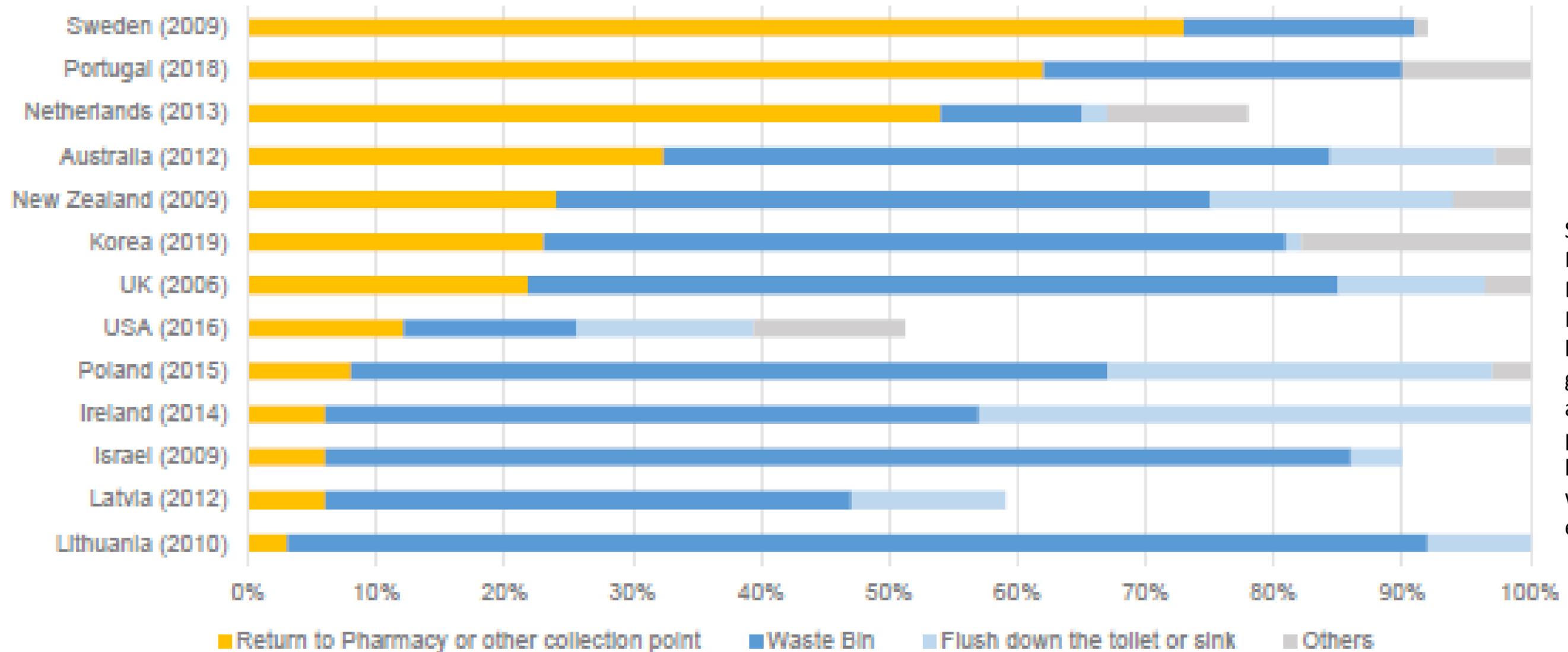
11,400 tonnes – 1,600 tonnes = **~9,800 tonnes/year**  
**(i.e. approx. 86% of wasted drugs)**



# Introduction:

## Household disposal practices

Figure 3.2. Household disposal practices of unused or expired medicine in selected OECD countries



Source: OECD. (2022) Management of Pharmaceutical Household Waste. [https://www.oecd.org/en/publications/management-of-pharmaceutical-household-waste\\_3854026c-en.html](https://www.oecd.org/en/publications/management-of-pharmaceutical-household-waste_3854026c-en.html)





# Aims of DISPOSAL Study

- Analyse **functioning of national collection and disposal systems**
- Investigate **how unused and expired medications are disposed of in real-world settings**
- **Identify gaps** between official guidelines and everyday disposal practices
- Explore **public knowledge and behaviour** based on observed patterns, not declarations
- Support **evidence-based, practical policy recommendations** for Europe



# Methodology of the **DISPOSAL** Study

- Led by **Medical University of Lodz** (Poland) in collaboration with **Syreon Research Institute** (Hungary)
- Online **expert survey** conducted across **Europe**
- Invited experts included **specialists in healthcare, health policy, pharmaceutical regulation etc.**
- Focus on **real-world systems, practices, and public behaviors**
- **Six key domains** analyzed: legal, logistical, economic, environmental, behavioral, and policy-related



# DISPOSAL Study Results

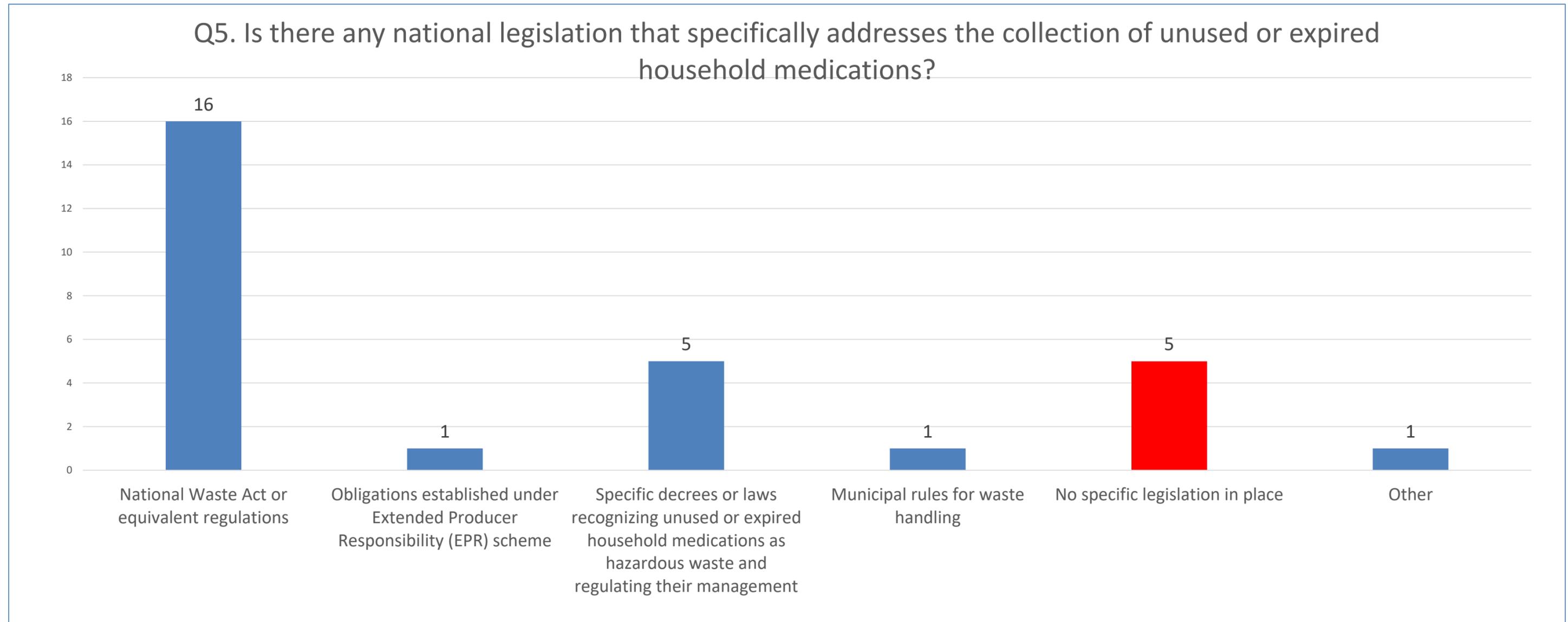


## Study Participants – Key Statistics:

- **36 experts** participated in the study so far
- **80%** from healthcare or pharmacy sector
- **8%** from pharmaceutical regulation
- **Majority with 10+ years** of professional experience
- Valid responses from **29 European countries**

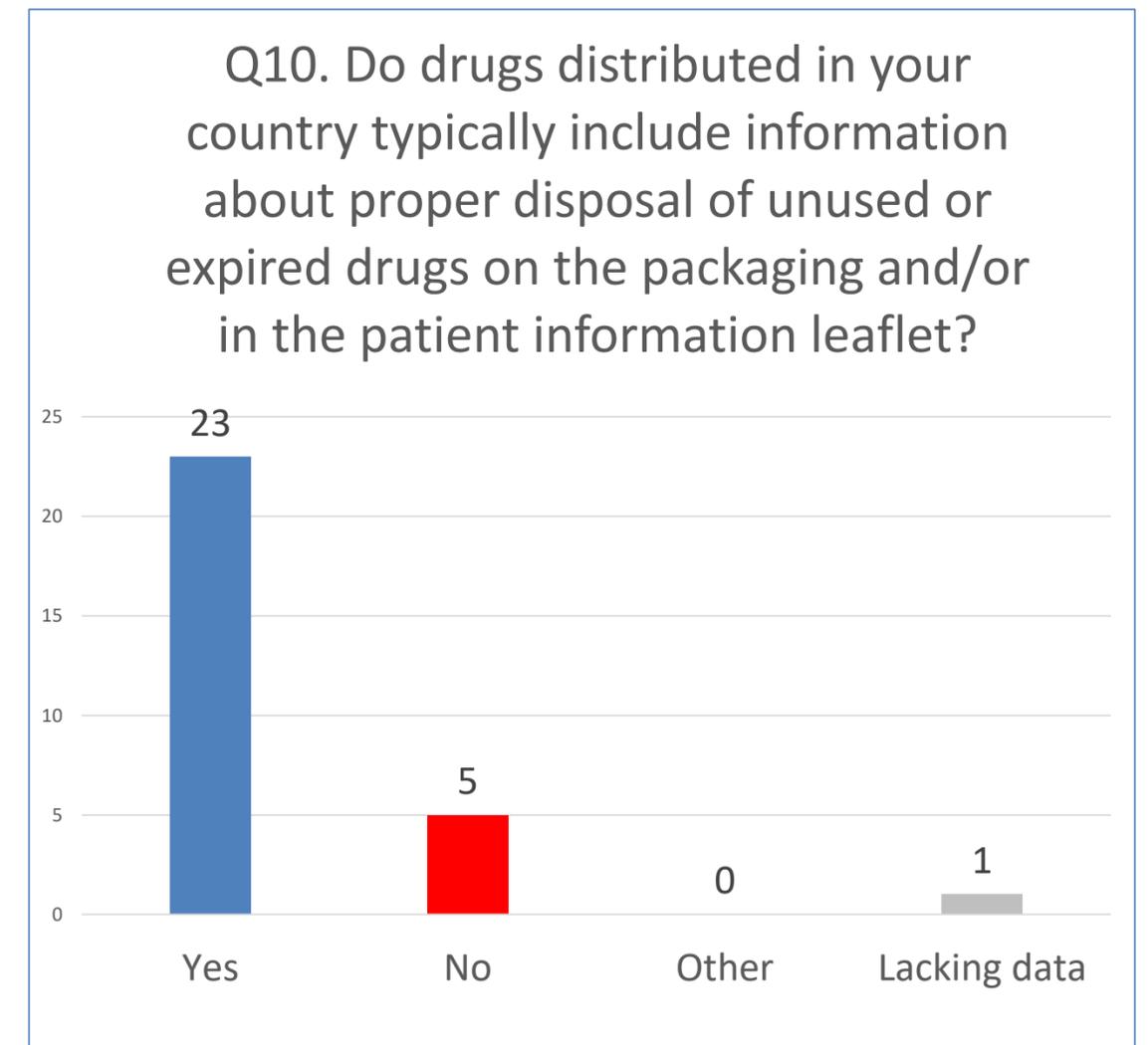
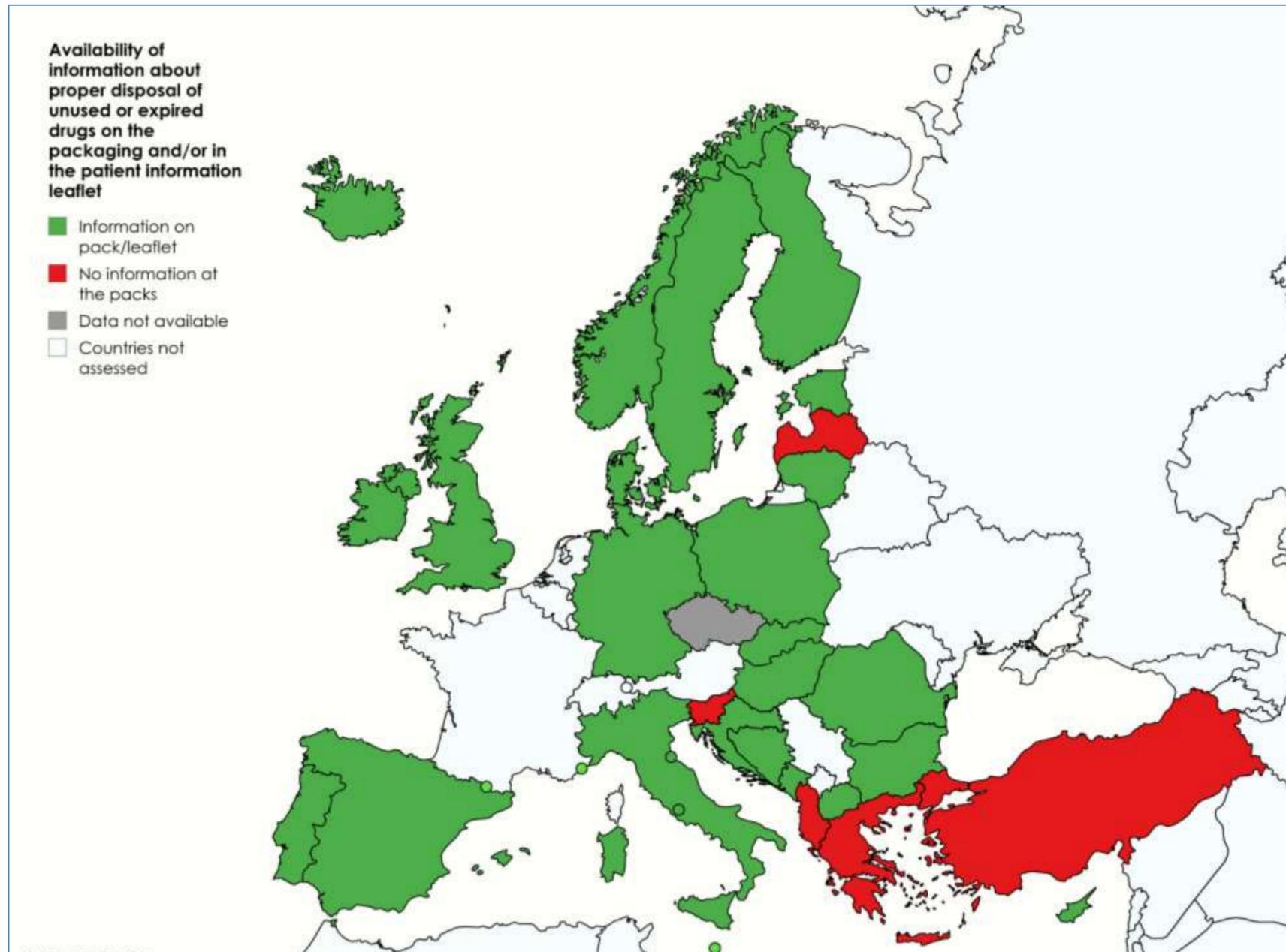


# National legislation





# Guidance on packs/leaflets



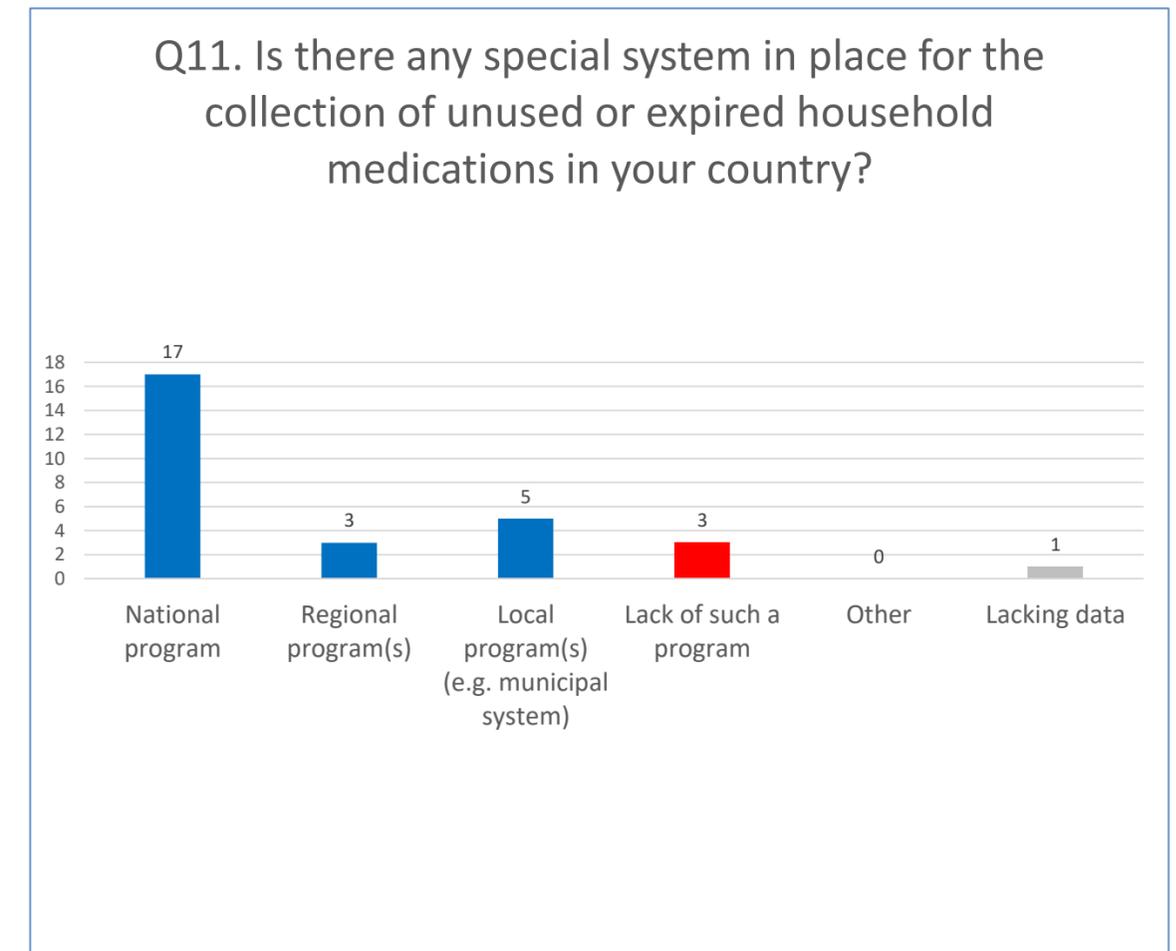
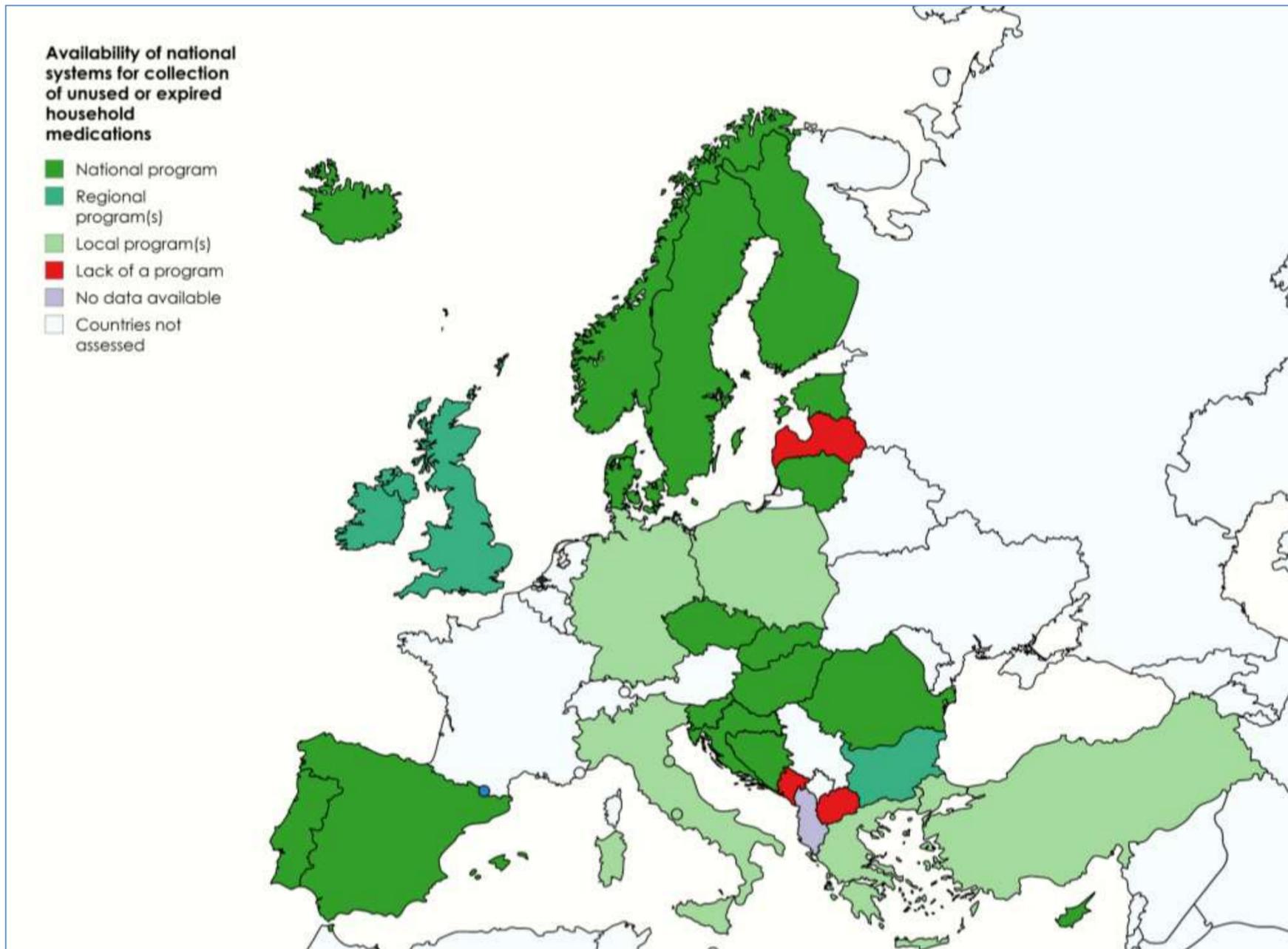


# Guidance on packs



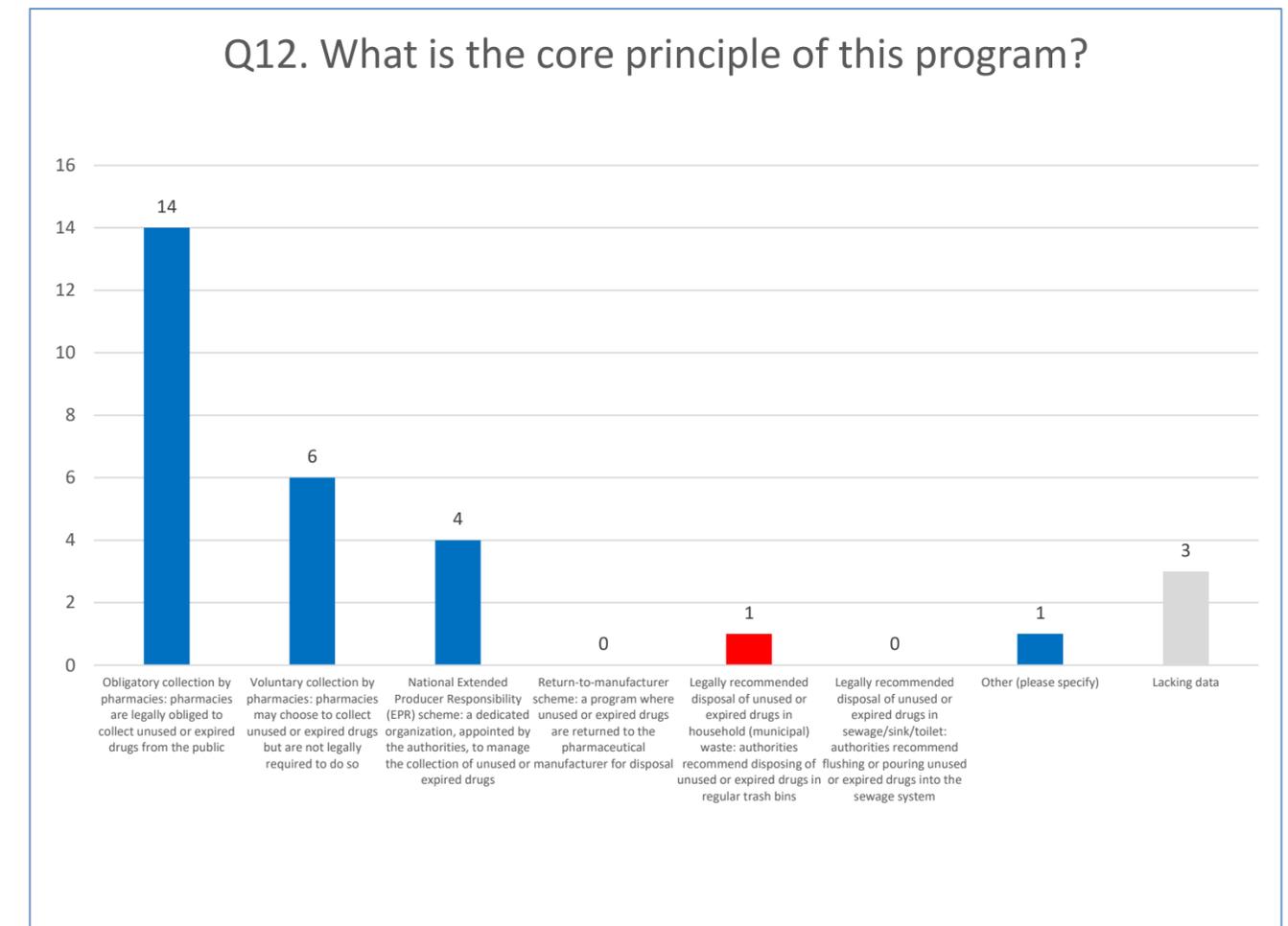
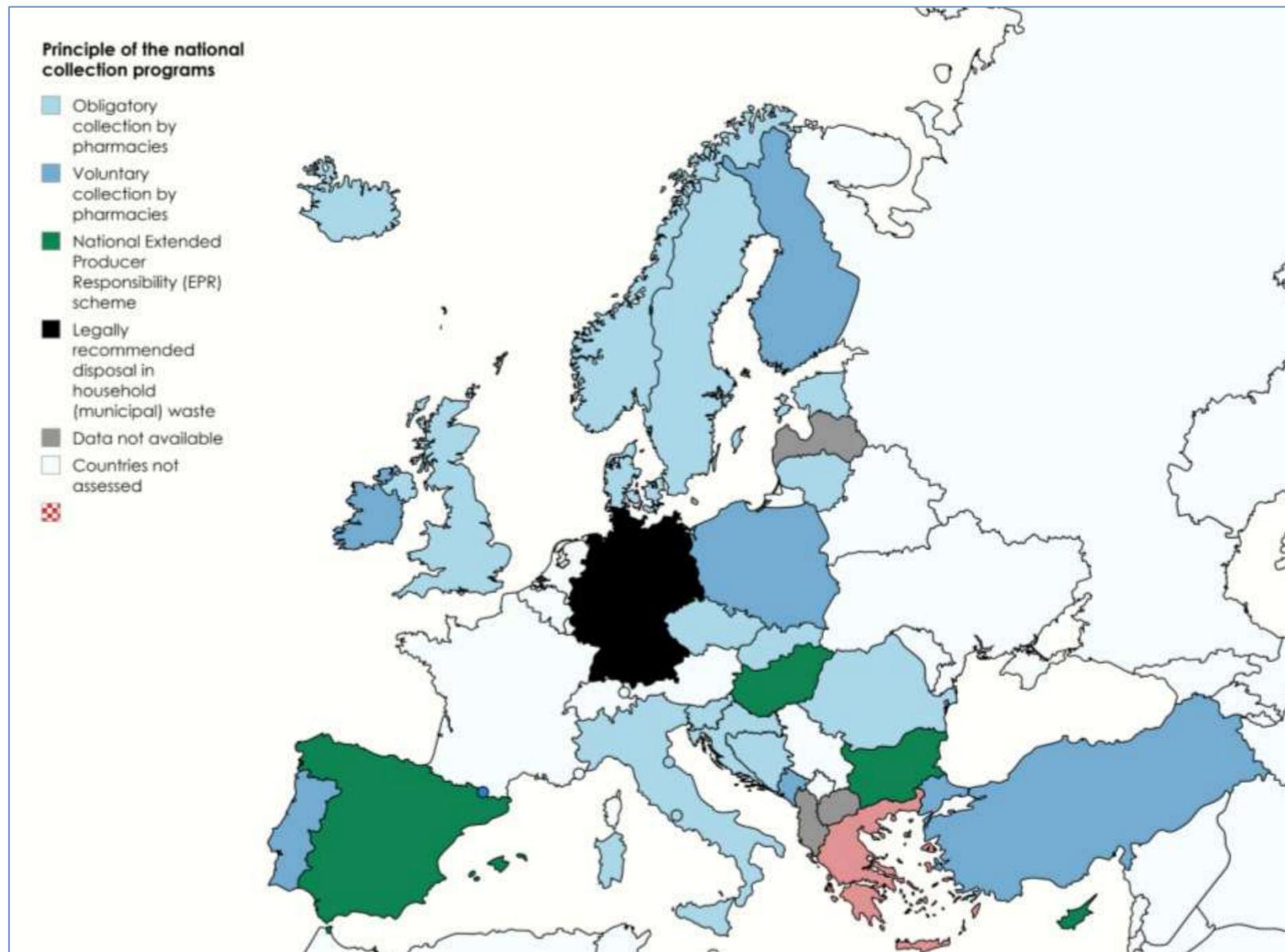


# Results: National collection systems



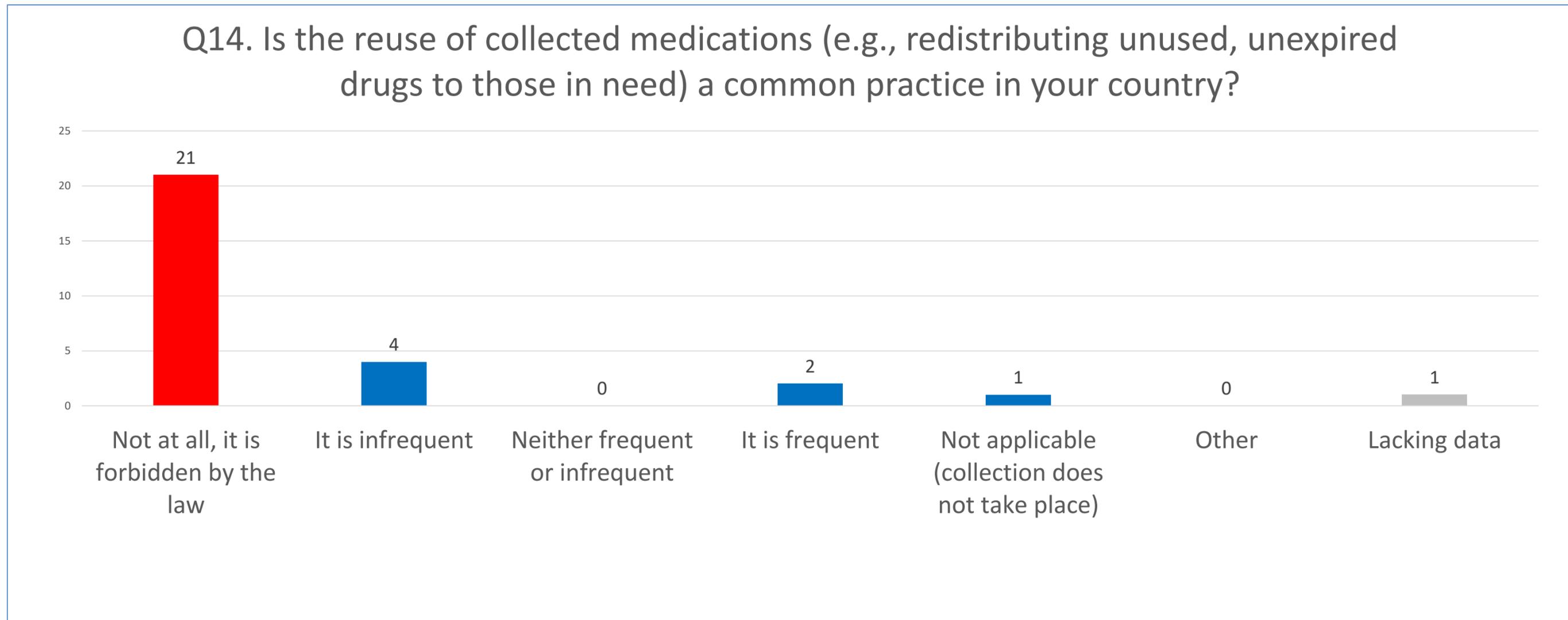


# Principles of national collection systems



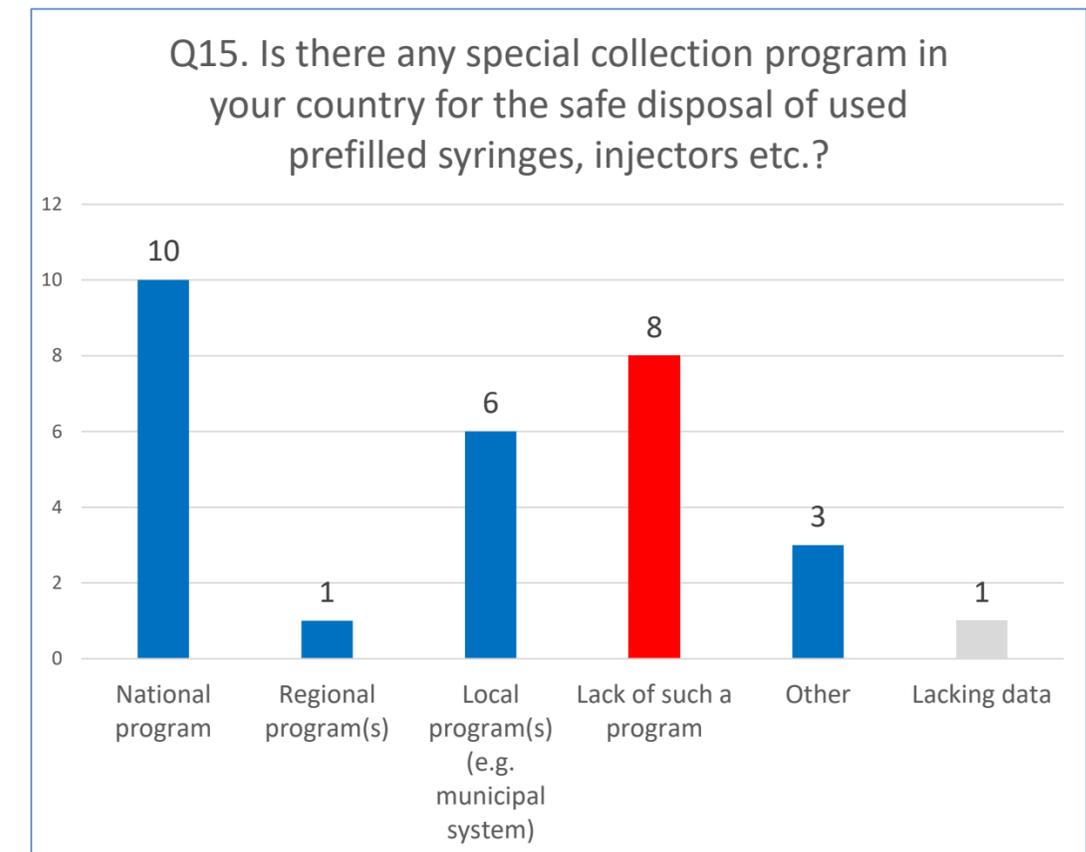
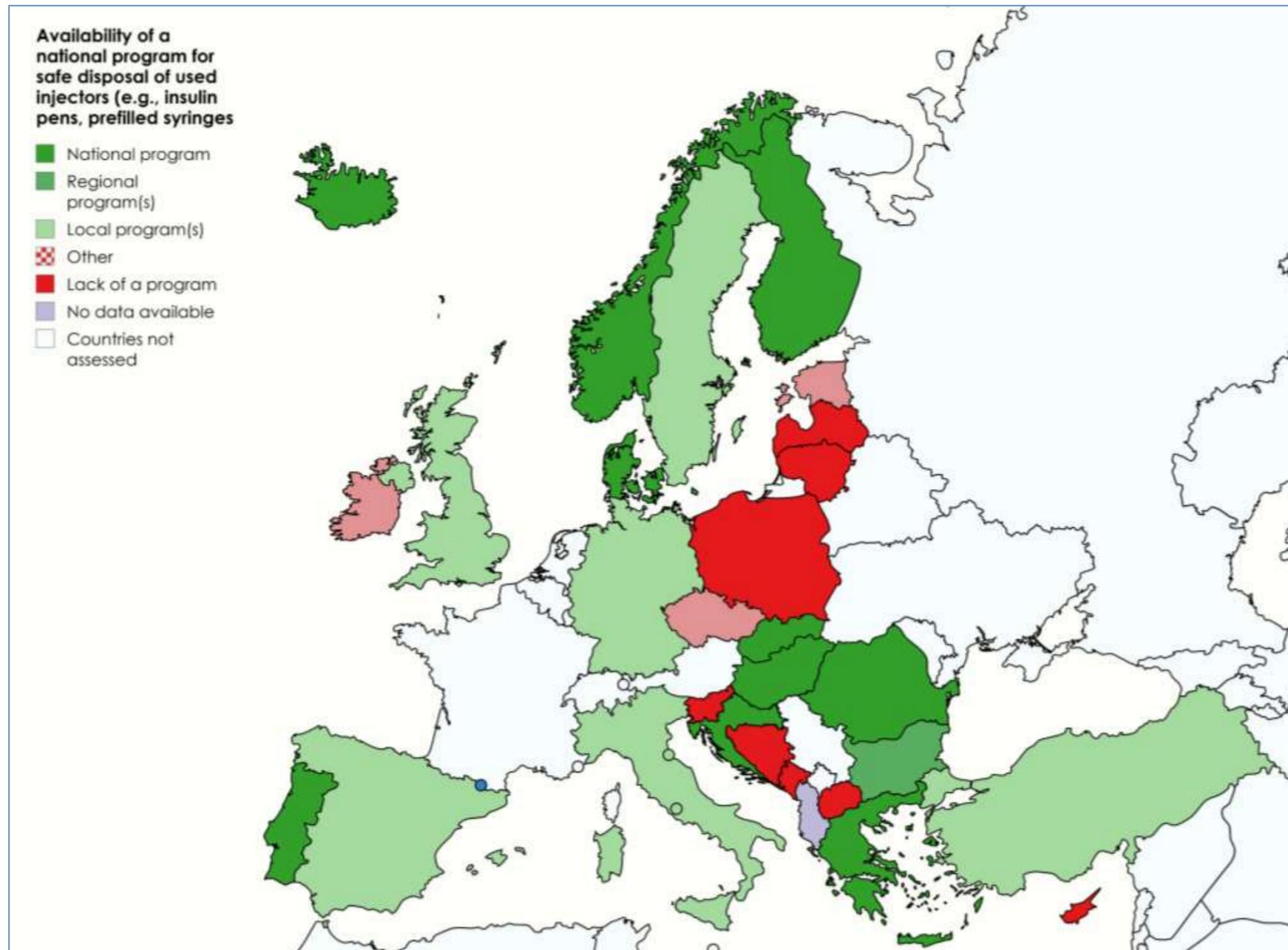


# Reuse of unused drugs



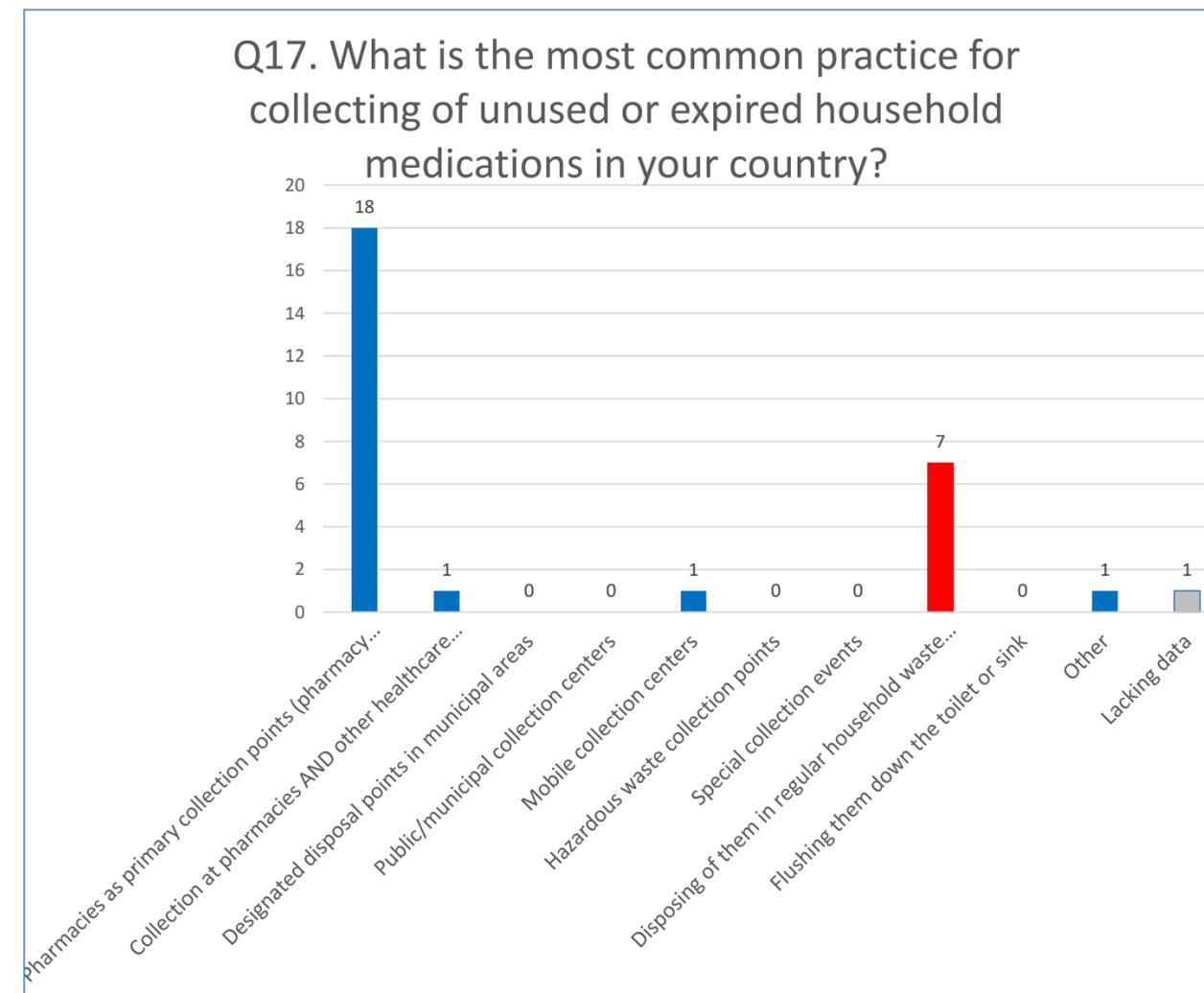
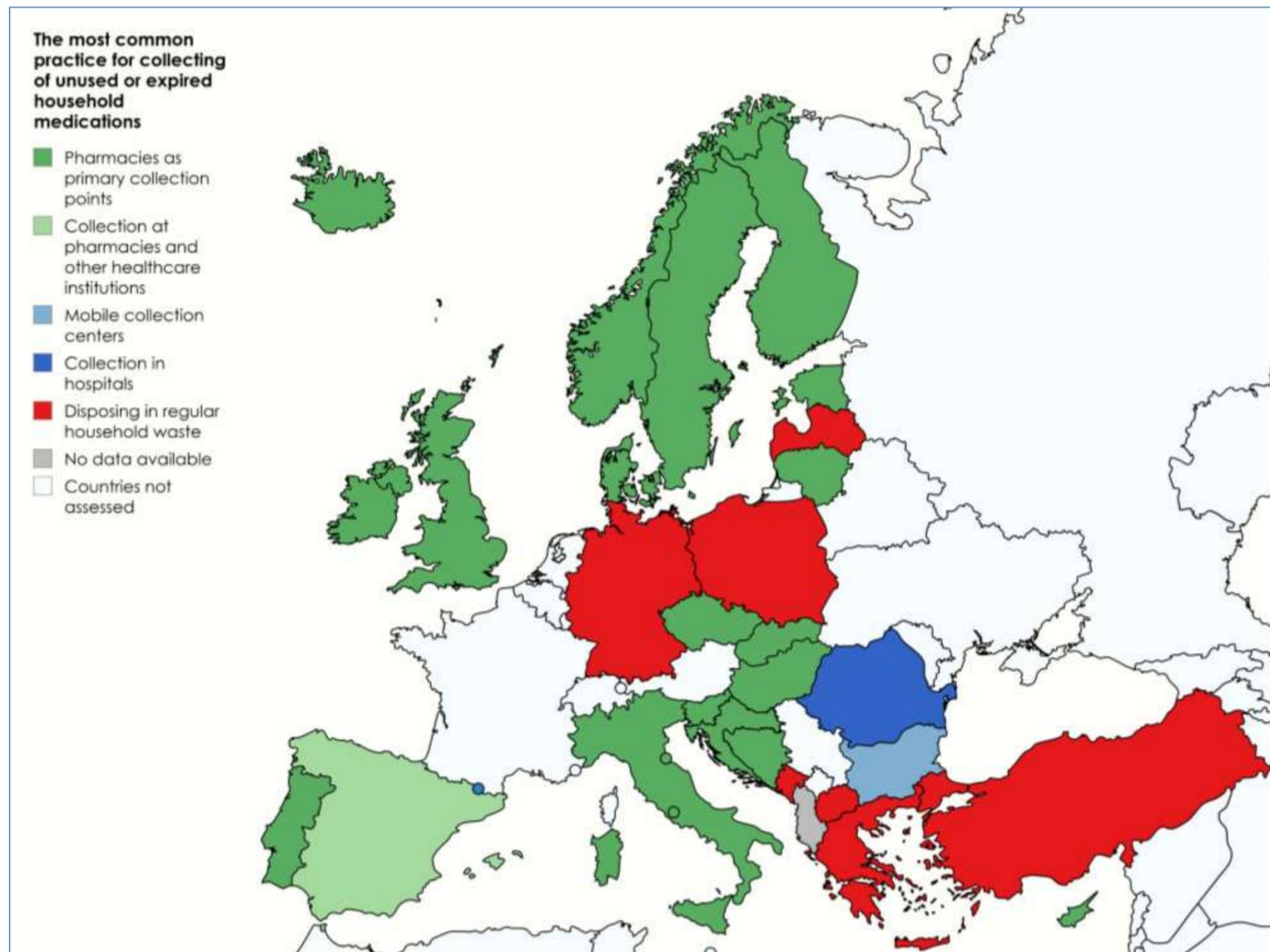


# Collection of used injectors



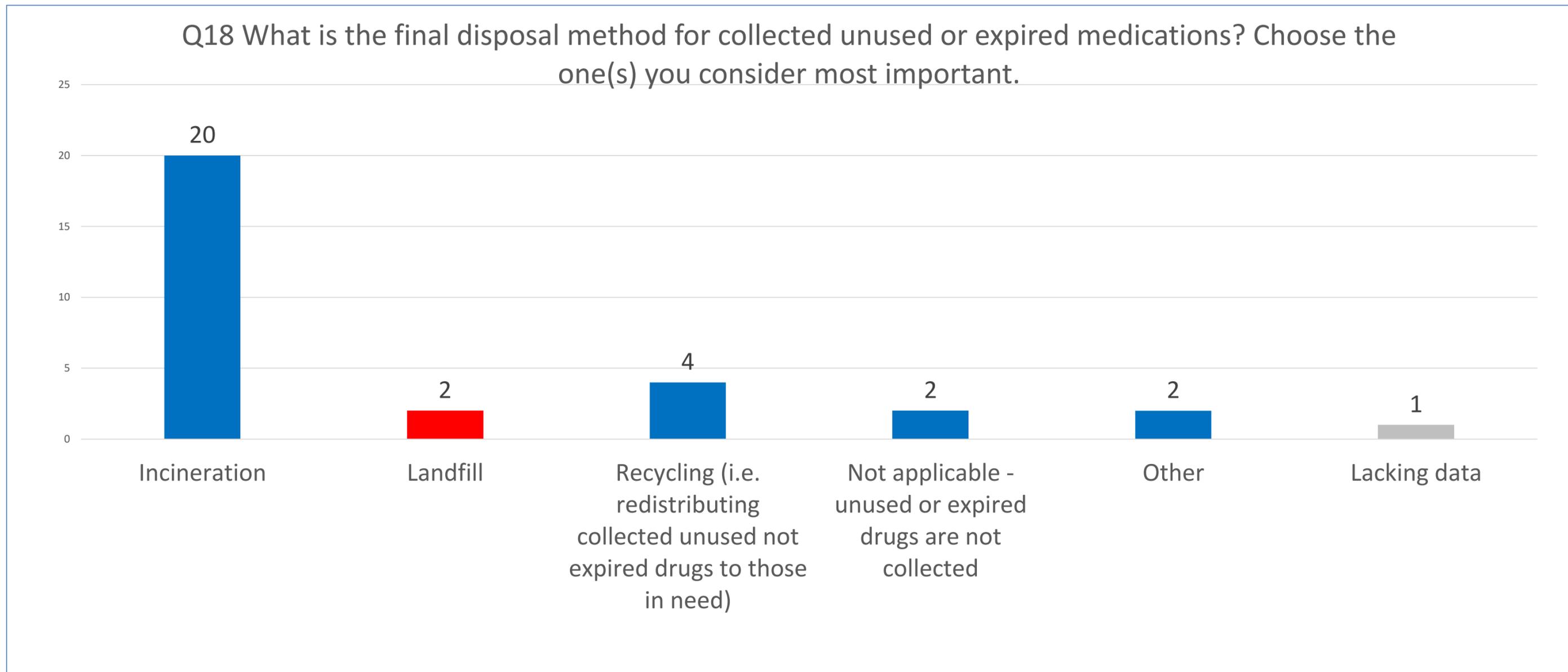


# The most common disposal practice



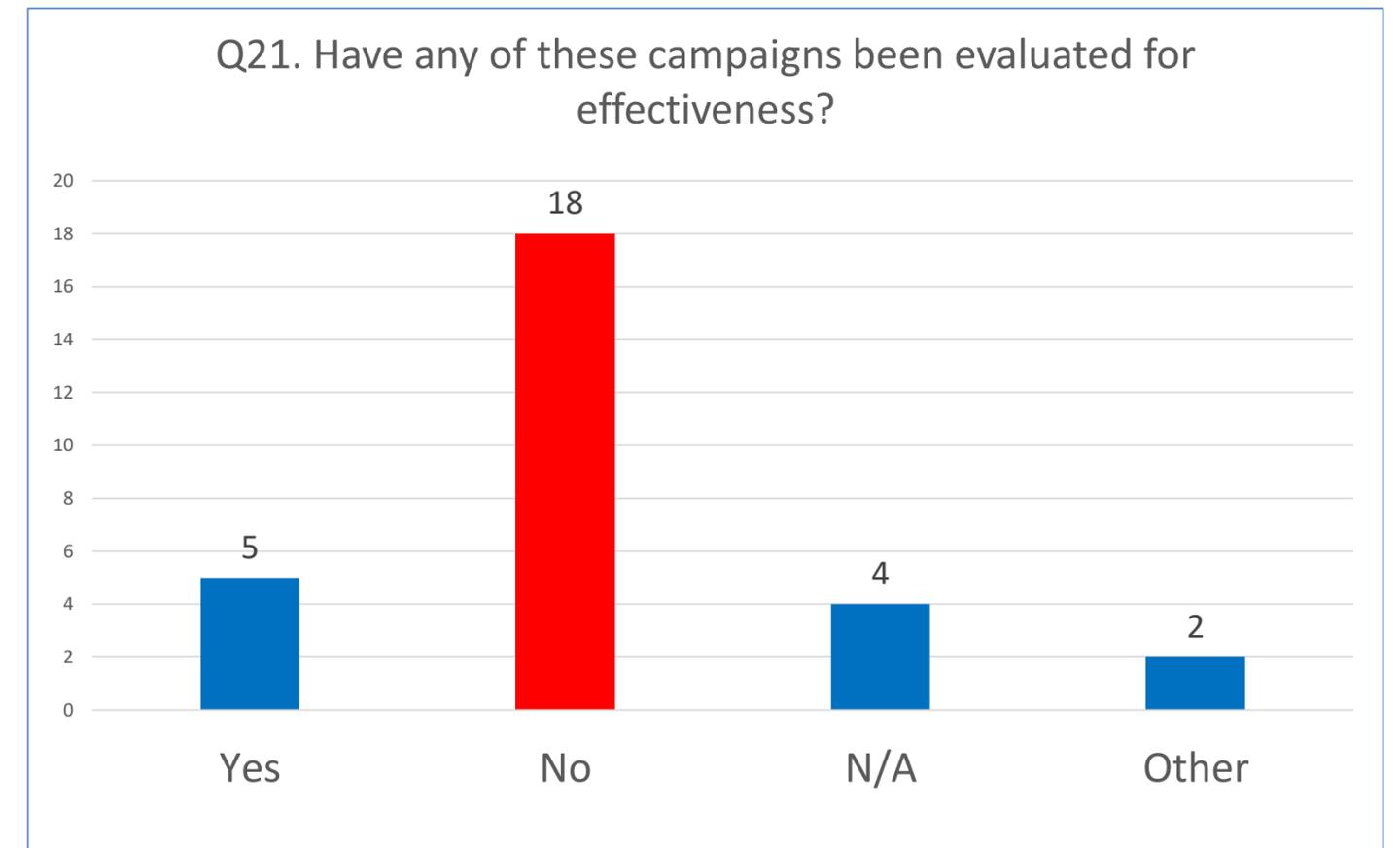
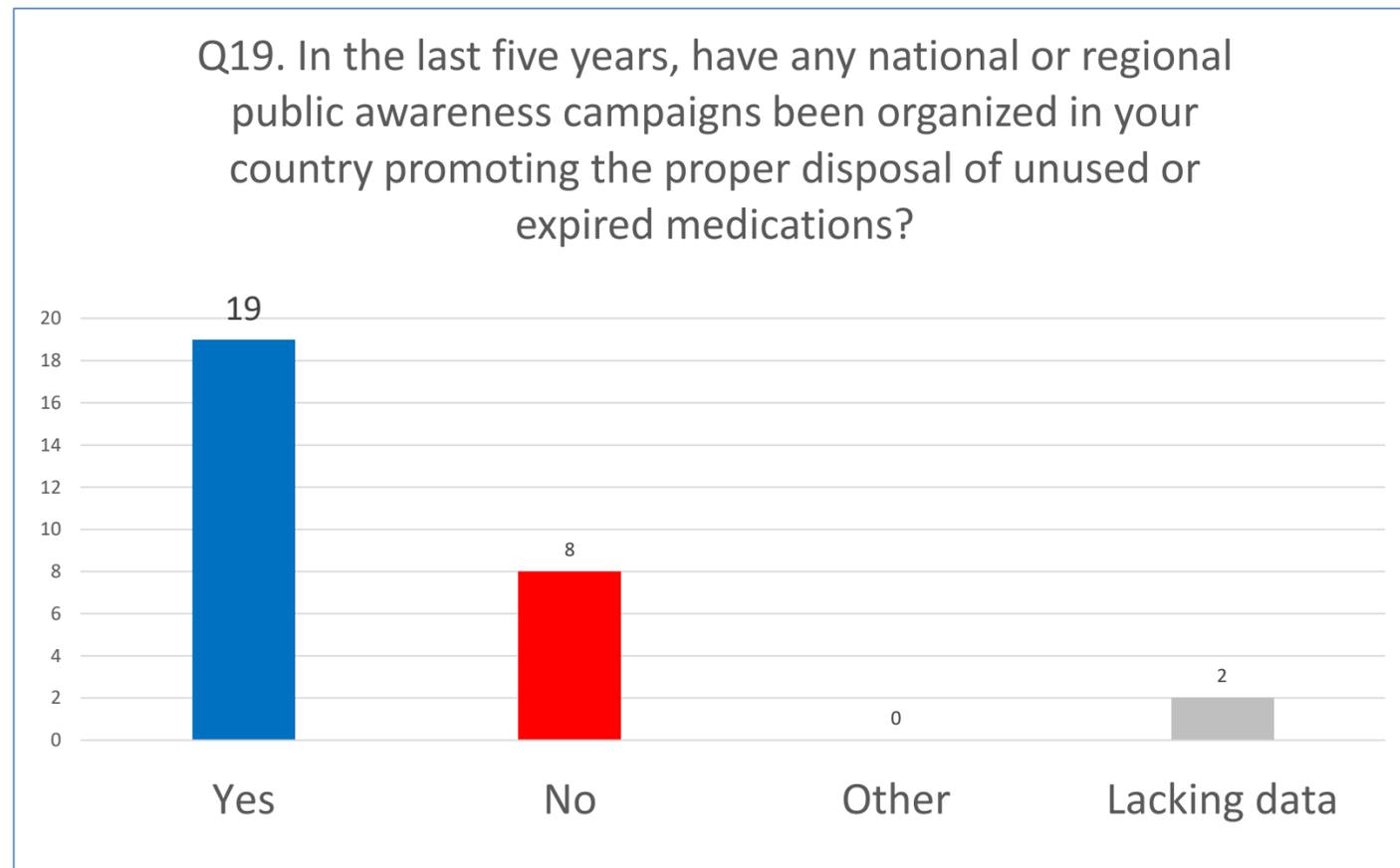


# Results





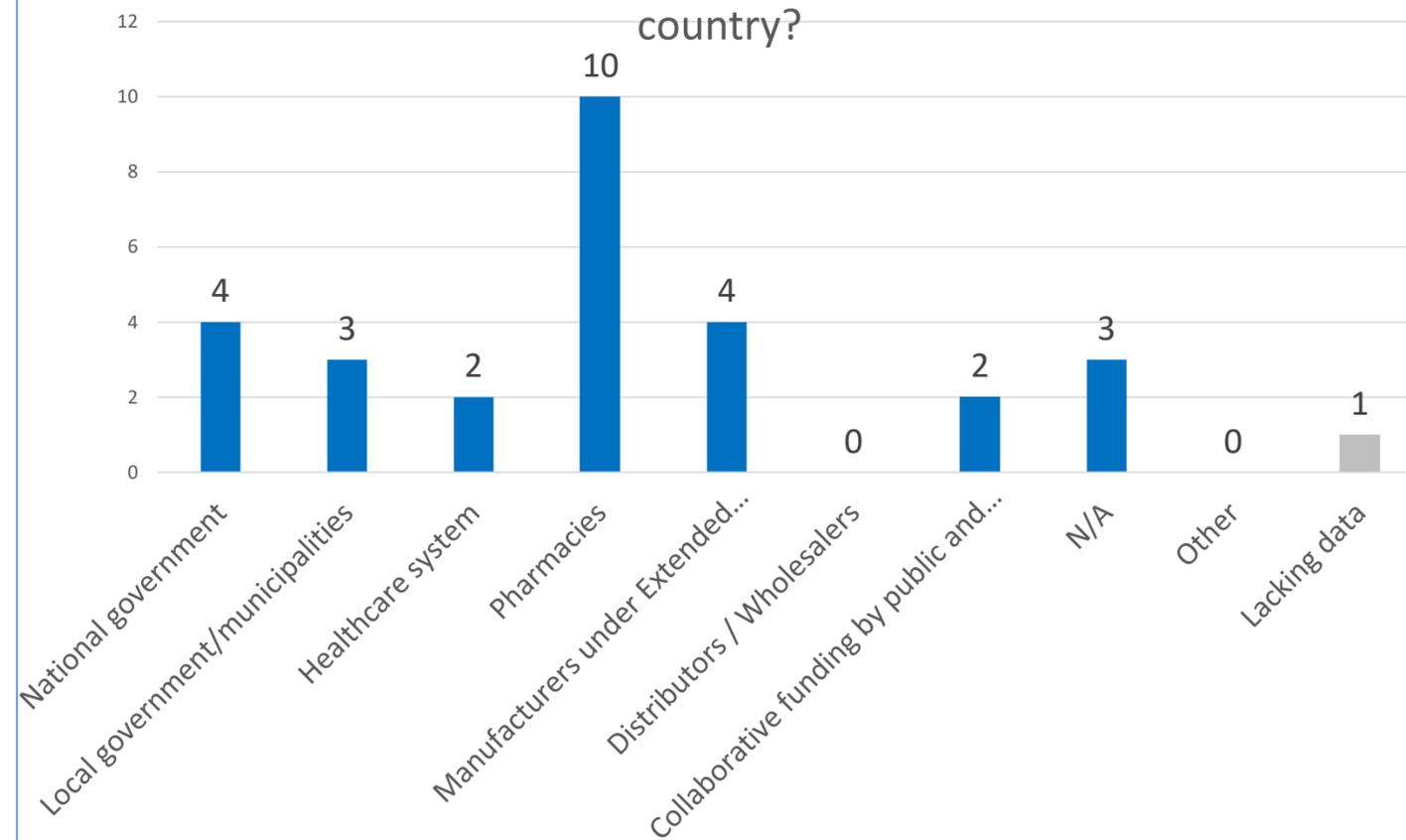
# Public awareness campaigns



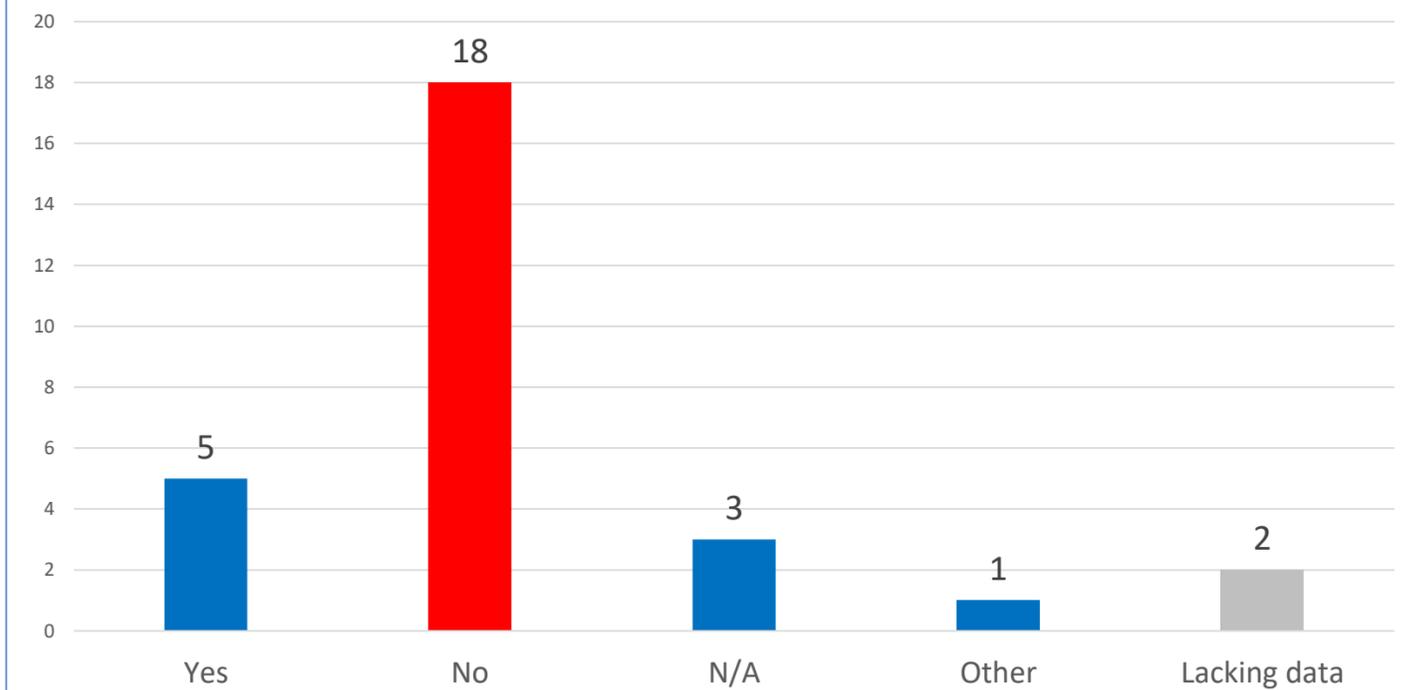


# Economic aspects

Q23. Who is responsible for covering the costs of collecting of unused or expired household medications in your country?



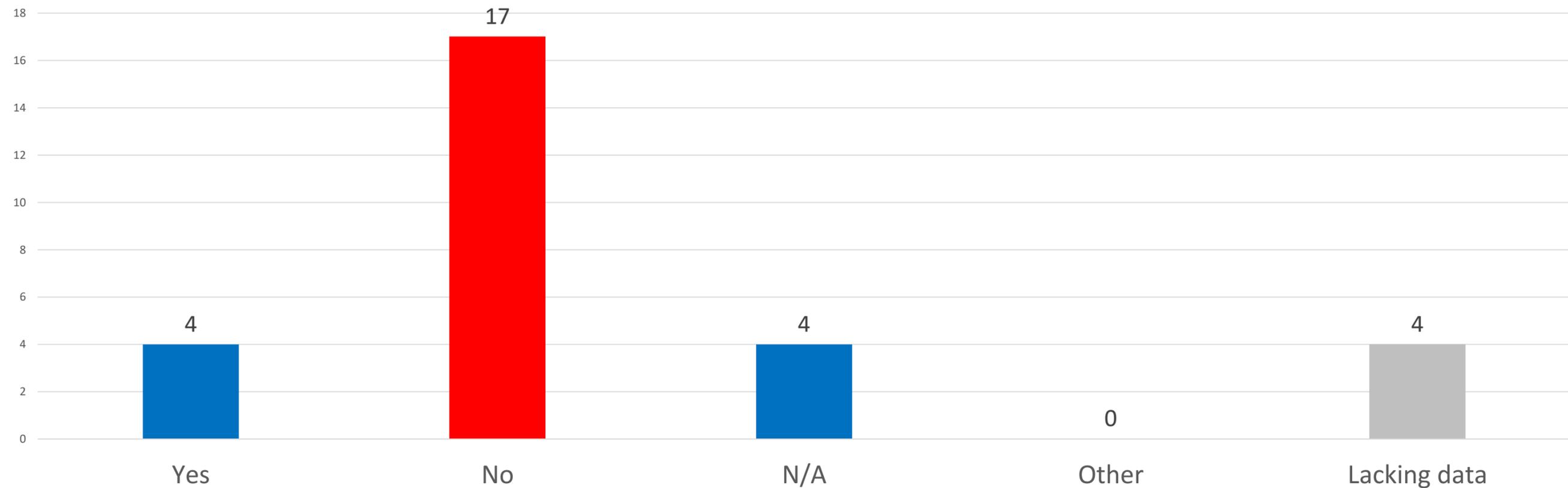
Q24. If pharmacies collect unused or expired household medications, are they reimbursed for the associated costs?





# Monitoring

Q30. Are national statistics available on the reasons for household drug wasted (e.g., expired drugs, medication non-adherence, etc.)?





# DISPODSAL Study Conclusions

- DISPOSAL provided valuable insight into **current real-world practices** in medication disposal across EU
- **Significant gaps exist** between medication waste generation and collection capacity
- **Current real-world practices** in medication disposal across Europe remain inconsistent
- **Public awareness and infrastructure barriers** hinder proper medication disposal
- **Harmonized regulations and clearer public guidance** are urgently needed
- Strong expert consensus supports the need for EU-level policy improvements





# Thank you!



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[www.zmr.lodz.pl/en/reducing-medication-waste](http://www.zmr.lodz.pl/en/reducing-medication-waste)