Insight into medication disposal by patients upon discharge from hospital

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Background

A recent Organisation for Economic Cooperation & Development (OECD)[1] report showed that globally, patient waste disposal patterns vary by medication source and formulation. Improper disposal can lead to environmental harm via pharmaceutical molecular pollution. UK patients should return all unwanted medication to a Pharmacy.

Objectives

Determine medicine disposal habits according to:

- Formulation (Oral solids, Liquids, Inhalers, Topicals, Eye/Ear/Nose drops (Drops), Injections & Patches)
- Medication origin (Hospital, GP, Pharmacy, Other e.g. supermarket)

Method

- Survey, written in patient-friendly language, collecting:
  - Age, gender.
  - Disposal habits as per drug formulation.
  - Disposal habits as per medication source.
- Including a 5-patient pilot, data was collected from 56 adult patients with clinically determined cognitive ability over 7 days (December 2022).
- Results were analysed using Google sheets®.
- This study did not require ethics approval.

Results

Disposal per formulation – primary 3 methods

- Solids: Pharmacy 60%, Rubbish 31%, Toilet 3%
- Liquids: Pharmacy 48%, Toilet 26%, Rubbish 19%
- Inhalers: Pharmacy 50%, Rubbish 39%, Recycling 7%
- Topicals: Rubbish 51%, Pharmacy 41%, Recycling 3%
- Drops: Rubbish 47%, Pharmacy 42%, Toilet 5%
- Injections: Pharmacy 73%, Rubbish 16%, Don’t Know 10%
- Patches: Rubbish 47%, Pharmacy 46%, Don’t know 4%

Disposal per medication origin – primary 3 methods

- GP: Pharmacy 54%, Rubbish 32%, Toilet 6%
- Hospital: Pharmacy 58%, Rubbish 30%, Toilet 6%
- Pharmacy: Pharmacy 49%, Rubbish 38%, Recycling 5%
- Other: Rubbish 45%; Pharmacy 43%, Toilet 6%

Conclusion

Results show patient habits regarding medication disposal does indeed vary by formulation and medication origin.

‘Pharmacy return’ was first choice for all formulations except topicals, drops and patches which primarily went into rubbish. Post-survey patient conversations highlighted views that these drugs were ‘less harmful’ or ‘not real medicine’. Conversations also highlighted that disposal is influenced by pharmacotherapeutic group e.g. antibiotics would be returned to pharmacy more commonly than simple analgesia, possibly due to dedicated national antimicrobial stewardship campaigns. Liquids had the highest response to being flushed down the toilet, suggesting patients underestimate their pharmaceutical value, whilst inhalers had the highest likelihood of being recycled: patients referenced inhaler recycling schemes. Injections were most often identified for ‘return to pharmacy’ possibly due to better healthcare professional counselling for high-risk or sharp items.

‘Pharmacy’ was the primary disposal route for all medications except those bought from non-Pharmacy locations; these were predominantly placed in rubbish. Possibly they are not seen as pharmaceuticals, as opposed to hospital drugs which had the highest chance of ‘Pharmacy’ return.

Future public health campaigns need to focus on medicines disposal in order to contribute towards environmentally positive waste management behaviours. Education programmes may benefit from focus on drug pharmacology or environmental impacts. Additionally, it was found patients over 65yrs would more likely return medicines to pharmacy compared to younger patients, suggesting awareness campaigns could be tailored to cohorts for maximum effectiveness. This study should be replicated with a larger number of participants to give insight into wider UK population behaviours.

References

1. OECD. Management of Pharmaceutical Household Waste: *Limiting Environmental Impacts of Unused or Expired Medicine*. Paris: OECD publishing; 2022. https://www.oecd-ilibrary.org/environment/management-of-pharmaceutical-household-waste_3854026c-en (accessed 10 November 2022).