

# Storage, use, and cost of drug products for Palestinian households: a cross-sectional survey

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## Abstract

**Background** Appropriate household storage and use of drug products can reduce drug wastage and unnecessary hazard. We investigated storage, patterns of use, and cost of drug products for households in the occupied Palestinian territory (oPt).

**Methods** We obtained data from a cross-sectional survey of households in northern oPt. All senior pharmacy students at An-Najah National University, West Bank, oPt, completed written questionnaires about their household and four neighbouring households. Types and quantities of drug products in every household were reported, and family members were interviewed in person about use of drug products, and where drug products were stored.

**Findings** 465 households were assessed, although 50 households were excluded because they did not cooperate fully with the researchers. 5505 (mean 13·3 [SD 7·8]) drug products were recorded from the 415 houses. A significant positive correlation was noted between the number of drug products in a household and high education of the father ( $r=0\cdot127$ ,  $p=0\cdot01$ ), and large family size ( $r=0\cdot17$ ,  $p=0\cdot001$ ). Presence of chronic disease in any family member was significantly associated with a higher number of drug products than was reported in households without chronic disease (mean 14·4 [SD 8·4] vs 12·5 [SD 7·2],  $p=0\cdot019$ ). Presence of private insurance coverage was also significantly associated with an increase in the number of stored drug products with one-way ANOVA analysis ( $p=0\cdot01$ ). 175 (42%) households had at least one child younger than 6 years of age, and 1894 (34%) drug products were stored in unsafe places in the houses, within the reach of children. 1789 (32%) drug products were not in their original container, 1800 (33%) were unused, 975 (18%) were expired, and 606 (11%) had no clear expiry date. We estimated that the cost of drug wastage in the 415 households was US\$16 100, and \$19 million nationwide. The most common drug classes in households were for alimentary, musculoskeletal, and anti-infective disorders. Paracetamol (468 [9%]), ibuprofen (270 [5%]), and diclofenac (204 [4%]) were the most commonly reported individual drugs.

**Interpretation** Drug products are stored in large quantities in Palestinian households, and many of them are not used. This stockpiling of drug products might be attributable to Israeli curfews or movement restrictions for Palestinians, leading to concern among families about access to potentially useful or life-saving drugs. Assessment of patterns of drug use and national drug policies are needed to address the issue of stockpiling of drug products among households in the oPt.

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## Contributors

WMS and AFS contributed equally. SHZ, SWA-J, FFBS, and HSK contributed to the literature review, data entry, and data analysis.

## Conflicts of interest

We declare that we have no conflicts of interest.

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