

Supplied in vain – compatibility of standard oral syringes with medication packaging

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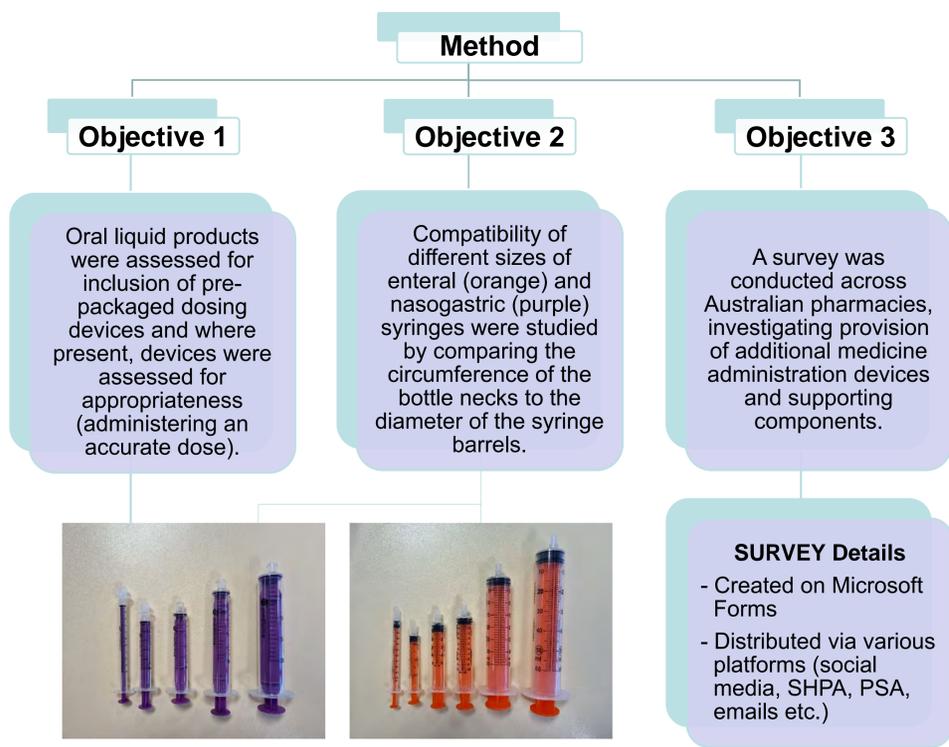
Background

- Oral liquid medicines require accurate measurement to enable appropriate dose administration.
- Many oral liquid medicines are pre-packaged with dosing devices; however, some devices may be inappropriate for a range of reasons e.g. limited increments, increments in non-standard units.
- A study conducted in 2016, stated that oral syringes provided the most accurate measured dose especially given the variability of prescribed doses of oral liquid medicines (Johnson and Meyers, 2016).

Objectives

1. To identify which oral liquid medicines at the Women's and Children's Hospital (WCH) Adelaide are supplied with inappropriate dosing devices
2. To assess compatibility of enteral and nasogastric syringes with oral liquid medicines in inventory at WCH.
3. To survey Australian pharmacists in multiple settings regarding current practices in provision of oral measuring devices and supporting components to consumers, to support safe medicine administration.

Method(s)



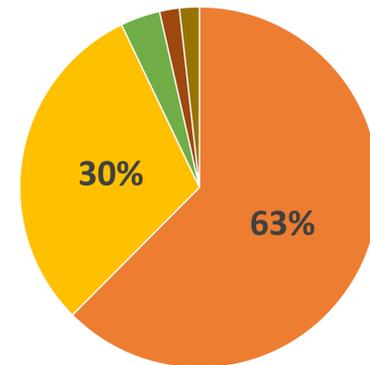
Results

- Objective 1**
 - 95 products were assessed and 62 products (63.3%) were not supplied with pre-packaged measuring devices.
 - 17 out of 33 products (51.5%) pre-packaged with dosing devices were pre-packaged with an inappropriate device.
 - Overall, 16 of 95 products (16.8%) were pre-packaged with appropriate measuring devices.
- Objective 2**
 - Most oral products were compatible with both enteral and nasogastric syringes provide by WCH, up to the 10ml-sized syringes, making them suitable alternatives.
- Objective 3**
 - 48% of pharmacy respondents always provide additional oral syringes to patients, 32% never do, and 20% did so sometimes.
 - 55% of pharmacies do not provide additional components to support drawing up of the liquid medicines.
 - Most patients are charged for the additional syringes and components in community pharmacies but not in hospital pharmacies.

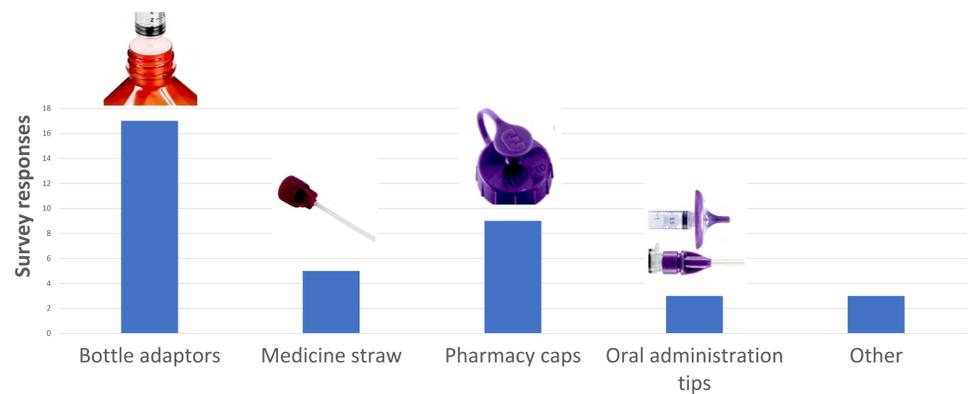
Results (continued)

Survey respondents

- Community
- Public Hospital
- Private hospital
- Compounding Pharmacy
- Ambulance/Pre-hospital



Type of additional components provided by pharmacies



Discussion

- Of the inappropriate 17 devices provided with products by the manufacturer:
 - 16 had minimal increments which did not enable administration of commonly prescribed doses
 - 1 had increments in milligrams instead of millilitres
- Manufacturers of these 17 devices were alerted through letters highlighting the potential for error and providing suggestions for improvements
- Return responses were received from 6 manufacturers
 - They recorded the feedback to aid future improvements in their products.
 - A reason provided was that off-label paediatric dosing is not included in their product information and hence, not marked on the provided devices
- A poster was created to illustrate the type and size of syringe compatible for each liquid product to ease workflow in the WCH dispensary
- 48% of pharmacies provide additional oral syringes, highlighting increasing awareness of the inadequacy of pre-packaged dosing devices
- However, a majority of the pharmacies do not provide additional components to support the administration of the oral liquid medicines. These components are important to aid accurate dosing volumes being withdrawn and/or administered
- Additional syringe and component supply represents out-of-pocket costs for either pharmacies or patients; this may be a deterrent to more widespread provision

Conclusion

- Provision of appropriate oral dosing devices and supporting components to draw up medicines is important to ensure accurate and safe administration.
- **Only 17% of assessed products were supplied with appropriate measuring devices and 1/3 of pharmacies never provide a way for patients to accurately measure doses of liquid medicines.**
- Manufacturers need to provide more appropriate dosing devices with products.
- This project highlights a consequence of off-label prescribing.

Reference:

Johnson, A & Meyers, R 2016, 'Evaluation of Measuring Devices Packaged With Prescription Oral Liquid Medications', *The Journal of Pediatric Pharmacology and Therapeutics*, vol. 21, no. 1, pp. 75–80, viewed 22 September 2022, <Evaluation of Measuring Devices Packaged With Prescription Oral Liquid Medications - PMC (nih.gov)>.

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