

Improving safety with oral medication bottles

Background

Once opened, liquid oral medications must be used within a finite time to ensure that they are safe and effective to administer. Details of shelf life can be found for each medication within the SPC (Summaries of Product Characteristics) on the Electronic Medicines Compendium.

Within this Neonatal Intensive Care Unit, documentation is readily available highlighting the length of time each liquid medication can be safely used for before it must be disposed of. Current practise is to write the date opened on any new bottle of medication. This practise requires nurses to calculate the expiry date each time the bottle is used. Computers are limited and mobile phones are not permitted. This makes the task onerous and one that must be repeated many times. Human factors can easily lead to an error under such circumstances.

Method

A survey was taken of the number of oral medications prescribed and how many times within a twenty four hour period these medications were administered, to assess the frequency of medication checks. At the same time all opened oral medication bottles were counted and assessed to see how they were labelled in respect to their expiry date.

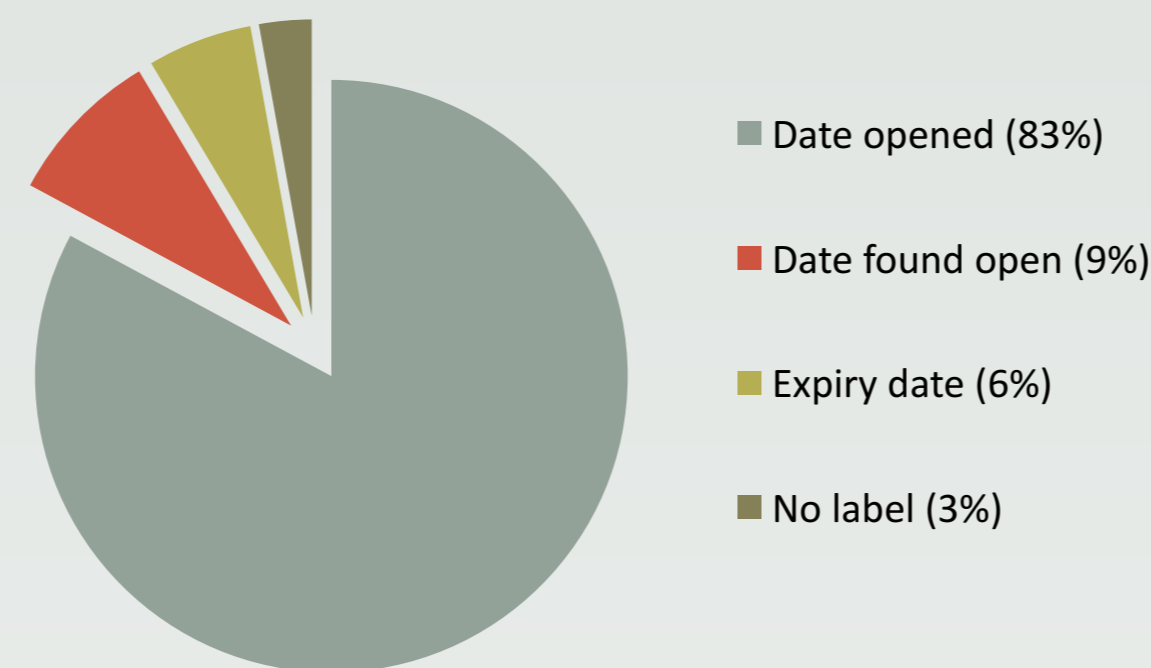
At the time of the initial survey, 11 different oral liquid medications were prescribed a total of 30 times over the course of one 24 hour period. The survey revealed a discrepancy in our current labelling system, indicating that bottles found open but unlabelled are still used rather than being discarded.

This has implications to patient safety as not labelling a bottle once opened means that the expiry date cannot be accurately calculated. The initial survey revealed that 89% of bottles were labelled accurately (with 83% labelled as "opened on", and 6% labelled with an expiry date). 9% were labelled incorrectly, (with 6% labelled as "found open", and 3% having no label at all).

Stakeholder engagement

Following consultation with the unit's Matron, lead pharmacist and medicines management Sister it was arranged for "use before" labels to be introduced to the unit. These were placed in each medication trolley, along with a notice highlighting them for use. A calendar for the year was placed within the trolleys to allow for expiry dates to be calculated more easily. This information was disseminated to staff during nurse handover for a week prior to the change and the week following the change.

Opened oral medication bottles: Initial Audit

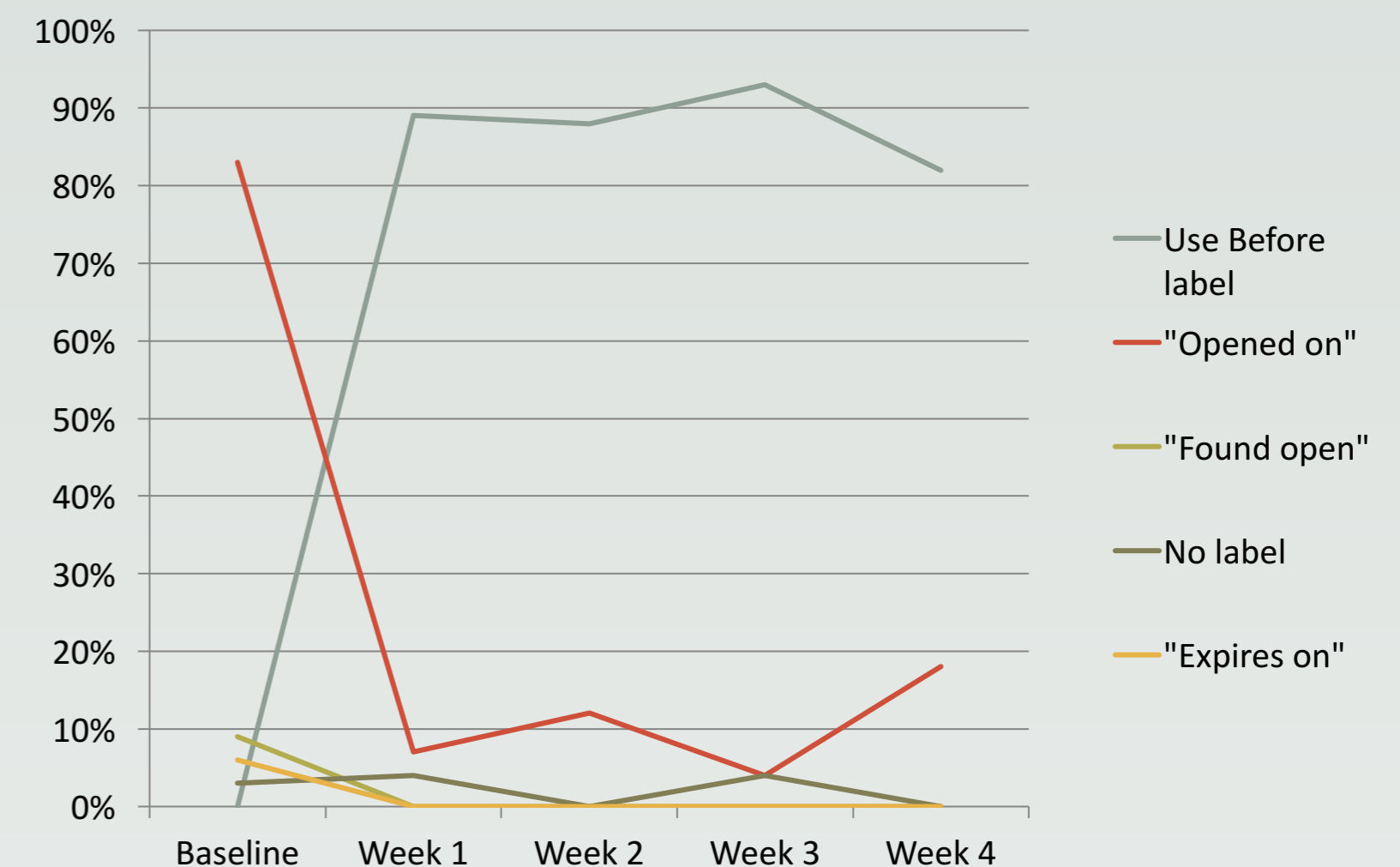


References:

1. Lowe R A. Storage, stability and in-use shelf-life guidelines for non-sterile medicines. London, Eastern and South East Specialist Pharmacy Services. 2001. [http://www.nhsppu.uea.ac.uk/assets/docs/qa/storage_stability_in_use_shelf_lives_of_non_sterile_medicines.pdf]
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3. Henriksen K, Dayton E, Keyes MA, Carayon P, and Hughes R. Understanding Adverse Events: A Human Factors Framework. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 5. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK2666/>

Results

The audit taken one week after implementation revealed an 89% compliance rate with the new labelling system. No bottles were found open and unlabelled, however, 7% were still labelled as "opened on" without the new stickers having been used. After this first week, labels were placed in HDU to try to improve compliance, as HDU shares a medication trolley with SCBU. Week two revealed an 88% compliance rate, and week 3 a 93% compliance rate. By week 4, compliance had begun to wane, with only 82% compliance. Importantly, however, over the 4 week period, no bottles were labelled as "found open" and only 2 unlabelled bottles were found, thus indicating an overall improvement in patient safety.



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