Are you short or TALL? Reducing risk of drug errors

Keith Underwood
Medical Devices Trainer, Scarborough and North East Yorkshire Healthcare NHS Trust

Abstract
Drug errors pose great risks to patients, and can be the result of health professionals misreading drug labels. Tallman lettering is a labelling system that uses capital letters to distinguish between drug names that look or sound similar. However, the system itself is not standardised, and this is a necessary next step to further minimise drug errors and the harm they cause to patients.

Key words
Drug errors, Drug labelling, Tallman lettering

Reference

Review
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Ever since I began working in the operating theatre in the late 1970s, incorrect administration of drugs has been a risk for patients. Over the years there have been many ideas about how to solve the problem. Initially it was ‘leaving the ampoule on the end of the syringe’; this then led to labelling the syringes, a far safer method.

To assist in this, some drug companies provided detachable labels that could be taken off the ampoule and placed directly onto the syringe. Others provided a strip of labels within the box (Figure 1). Eventually label manufacturers started to provide a standardised labelling system for drugs; this included a colour coding system for the category of drug, such as muscle relaxants, opioids, and local anaesthetics – this will be discussed later.

As time went on discussions led to recommendations, and now policies, on who should draw up and administer drugs. In today’s clinical practice, the individual giving the drug should be the one drawing it up. This practice may need to be adapted in the emergency environment, where a team approach is used for the maximum care of a patient, and individual tasks are given to individual staff members. In these cases the staff member drawing the drug up might not be the one giving it, so to this end, a procedure must be in place to facilitate first- and second-person drug checks prior to administration.

Even with the practices described above, there is a risk of incorrect drugs being administered, particularly in emergency and highly stressed environments.

Introduction of Tallman lettering
Scarborough and North East Yorkshire Healthcare NHS Trust decided to use Tallman lettering (Figure 1) in pre-programming 30 drug names into the Alaris GH+ syringe

Box 1. Sample of drug names stored in the Alaris GH+

| AMINOphylline | dopEXamine |
| AMIODAroine | FUROsemide |
| DOBOTamine | NORadrenaline |
| DOPamine | |

Figure 2. The Alara GH+
driver (Figure 2) when the device was being introduced into the trust.

According to Wikipedia, ‘Tall Man lettering (or Tallman lettering) is the practice of writing part of a drug’s name in upper case to help distinguish sound-alike, look-alike drugs from one another in order to avoid medication errors. For example, in Tall Man lettering, ‘prednisone’ and ‘prednisolone’ should be written ‘prednisONE’ and ‘prednisoLONE’ respectively. The Office of Generic Drugs of the US Food and Drug Administration encourages manufacturers to use Tall Man lettering labels to visually differentiate their drugs’ names, and a number of hospitals, clinics, and healthcare systems use Tall Man lettering in their computerised order entry, automated dispensing machines, medication admission records, prescription labels, and drug product labels.

To ensure trust staff were aware of the introduction of Tallman lettering across the trust, the system was discussed as part of the device training for the rollout of the new syringe driver. However, it was felt that it would be helpful to disseminate the information in an additional format so that it would be helpful to disseminate the information in an additional format so the following information was placed in the staff newsletter. ‘Tallman Lettering was introduced into the pharmaceutical industry some time ago, and is advocated by the National Patient Safety Agency (NPSA). You will find it becoming more frequently used within the pharmaceutical industry, and it is being incorporated not only in infusion devices, but also on the electronic pharmacy lists for wards and department and also on the labelling of the drug boxes themselves… the Alaris GH+ syringe drivers within our trust have 30 pre-programmed drug names, they include: AMINophylline, AMIcDAone, DOBUTamine, DOPamine, doPEXamine, FUROsemide, NORAdenaline. So, if you see drug names with unusual typeface setting, it is not a misprint, it is there to help you correctly identify the drug of choice so making the administration safer.’

Standardisation of Tallman lettering

As Figure 1 illustrates, there is no consensus among drug manufacturers on how Tallman lettering is used. Different systems include:

- Capitalising certain letters
- Use of colour
- Using bigger lowercase letters
- Combining colour and capitalisation or larger letters

The trust’s pharmacy department has used Tallman for the electronic pharmacy list for wards and departments. However, the way the computer program works means it is becoming an impractical method of searching for drugs. This is because the standard method of searching for drugs is by an alphabetical list, which searches for capital letters first and then for lower case. This means that in the sample list shown in Box 1, for example, DOPamine would be in the first half of the complete list and doPEXamine would be in the second half, even though both begin with the same letter – the search would recognise the D of DOPamine but the P of doPEXamine. This can lead to some confusion when searching on an electronic pharmaceutical list.

To make searching drug names using Tallman lettering practicable, the search protocol within all computer programs would need to understand that lower and uppercase letters could be mixed alphabetically to form one long list. Having said that, in the clinical area and on drug libraries associated with devices in our trust, this does not tend to be a problem. The devices that have been checked have an A-to-Z library and sort drug names irrespective of capitalisation.

The Medicines and Healthcare products Regulatory Agency (MHRA) website has a section entitled ‘Labels, patient information leaflets and packaging for medicines’, which looks specifically at Tallman lettering and shows some examples. The website also includes a link to Best Practice Guidance on Labelling and Packaging of Medicines, which goes into greater detail on all aspects related to labelling of drugs and there packaging (MHRA, 2003).

Garrett et al (2009) conducted a study for NHS Connecting for Health investigating drug errors before and after the introduction of Tallman lettering. Part of their conclusion states: ‘The findings of the results of the experiments the authors would advocate a pragmatic approach with the implementation of a specific rule-based Tall Man variant for a limited and specified set of ‘look-alike, sound-alike medicines’. It also states: ‘The findings that error in practice is more likely to occur with dose, formulations or a combination of these with look-alike medicines names highlights the need for broader research.’

Anaesthetic drug labels

The majority of people working in anaesthetics should be aware of the labelling system being used. The system shown in Figure 3 was developed after a joint initiative on syringe labelling in critical care areas undertaken by a number of professional associations (Royal College of Anaesthetists et al, 2003). It categorises drug types and colour codes them accordingly, for example, all muscle relaxants are labelled red, while narcotics are blue. Walters Medical, one of the biggest drug labelling companies in the UK, has stated that it had no plans to produce labels with Tallman lettering, mainly because it had not been asked to do so. However, after being approached to discuss the issue the company is seeking further information on Tallman lettering and the potential for it to be incorporated within its labelling system.

Conclusion

We need a sound and robust method of labelling drugs to help to minimise drug errors within clinical practice. Labelling can be electronic within medical devices, but should also incorporate appropriate labelling of the syringe itself, and should also incorporate a first- and second-person drug check, irrespective of who is administering the drug. I am convinced that using Tallman lettering will help to reduce drug errors in the clinical area. However, if we are to achieve this, we need a standardised system of Tallman lettering. As Figure 1 illustrates, there are at least three different styles, and this in itself could lead to drug errors. Standardisation in Tallman lettering would not only need to be adopted by the pharmaceutical industry, but also the computer programming companies – irrespective of if they are specialist medical programmers or bigger corporations like Microsoft.

References

