



TITLE: Labeling and Colour Coding of Medications: Patient Safety

DATE: 04 November 2008

RESEARCH QUESTION:

What are the guidelines for labeling or colour coding of medications or devices used to administer medications to reduce the risk of medication errors?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 4, 2008), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international health technology agencies, and a focused Internet search. Results include articles published between 2003 and October 2008, and are limited to English language publications only. Filters were applied to limit the retrieval to systematic reviews, health technology assessments, meta-analyses, and randomized controlled trials. Internet links are provided, where available.

RESULTS:

The literature search identified one set of clinical practice guidelines. Additional articles of potential interest are included in the appendix.

Guidelines and recommendations

1. *Best practice guidance on labelling and packaging of medicines.* [MHRA guidance note no. 25]. London (UK): Medicines and Healthcare products Regulatory Agency (MHRA); 2003. Available: <http://www.mhra.gov.uk/home/groups/comms-ic/documents/publication/con007554.pdf> (accessed 2008 Oct 31).

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APPENDIX – FURTHER INFORMATION:

Clinical trials

2. Shah AN, Frush K, Luo X, Wears RL. Effect of an intervention standardization system on pediatric dosing and equipment size determination: a crossover trial involving simulated resuscitation events. *Arch Pediatr Adolesc Med* 2003;157(3):229-36. [PubMed: PM12622671](#)

Observational studies

3. Filik R, Purdy K, Gale A, Gerrett D. Labeling of medicines and patient safety: evaluating methods of reducing drug name confusion. *Hum Factors* 2006;48(1):39-47. [PubMed: PM16696255](#)
4. Haslam GM, Sims C, McIndoe AK, Saunders J, Lovell AT. High latent drug administration error rates associated with the introduction of the international colour coding syringe labelling system. *Eur J Anaesthesiol* 2006;23(2):165-8. [PubMed: PM16426472](#)

Review articles

5. Venkatraman R, Durai R. Errors in medicine administration: how can they be minimised? *J Perioper Pract* 2008;18(6):249-53. [PubMed: PM18616203](#)
6. Hellier E, Edworthy J, Derbyshire N, Costello A. Considering the impact of medicine label design characteristics on patient safety. *Ergonomics* 2006;49(5-6):617-30. [PubMed: PM16717013](#)

Additional references

7. Webster CS, Merry AF. Colour coding, drug administration error and the systems approach to safety. *Eur J Anaesthesiol* 2007;24(4):385-6. [PubMed: PM17054811](#)
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9. Rupp SM. Color-coding of syringes may not enhance safety. *Reg Anesth Pain Med* 2005;30(6):589-90. [PubMed: PM16326347](#)
10. Sagadai S, Umakanth P. Color-coded syringes to reduce the incidence of syringe swaps. *Reg Anesth Pain Med* 2005;30(6):589. [PubMed: PM16326348](#)
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13. Bonnici F. Making insulin usage safer--the universal colour code. *S Afr Med J* 2004;94(5):343-4. [PubMed: PM15211949](#)

14. Rand CM, Conn KM, Crittenden CN, Halterman JS. Does a color-coded method for measuring acetaminophen doses reduce the likelihood of dosing error? *Arch Pediatr Adolesc Med* 2004;158(7):625-7. [PubMed: PM15237060](#)
15. Foster P. Drug syringe labelling. *Anaesthesia* 2003;58(1):99-100. [PubMed: PM12492690](#)
16. Sood D, Singh MR, Grewal A, Saini S, Singh I. Volume and colour coding for syringes. *Anaesthesia* 2003;58(3):290. [PubMed: PM12603471](#)
17. Kingsland J. Colour-coded cures. *New Sci* 2005;186(2503):42-7. [PubMed: PM16178100](#)
18. Loader J. Confusion relating to drug syringe labels. *Anaesthesia* 2004;59(1):98. [PubMed: PM14687120](#)
19. *The role of color coding in medication error reduction*. [Report 5 of the Council on Scientific Affairs (A-04)]. Chicago (IL): American Medical Association (AMA); 2004. Available: <http://www.ama-assn.org/ama/pub/category/13662.html> (accessed 2008 Oct 31).
20. *APA statement on the use of color coding*. Washinton (DC): American Psychological Association; 2005. Available: <http://www.apa.org/ppo/issues/apacolorcoding.pdf> (accessed 2008 Oct 31).
21. The Royal College of Anaesthetists, Association of Anaesthetists Great Britain and Ireland, The Faculty of Accident and Emergency Medicine, The Intensive Care Society. *Syringe labelling in critical care areas*. London (UK): Association of Anaesthetists Great Britain and Ireland; 2003. Available: <http://www.aagbi.org/publications/guidelines/docs/syringelabels03.pdf> (accessed 2008 Oct 31).
2004 update available: [http://www.rcoa.ac.uk/docs/syringelabels\(june\).pdf](http://www.rcoa.ac.uk/docs/syringelabels(june).pdf) (accessed 2008 Oct 31).
22. Shultz J, Harvie M, McDonald D, Manley J, Cole M. Standardizing the storage and labeling of medications: Part 1. *CJHP* 2007;60(2):123-5. Available: www.ismp-canada.org/download/cjhp0704.pdf (accessed 2008 Oct 31).
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