

A joint statement supporting user-applied labelling standardisation for all injectable medicines and fluids

Preparation of medicines for bolus injection or infusion is complicated, and there are many potential errors which can result in adverse medication events and serious patient harm.¹ The Australian Commission on Safety and Quality in Health Care (the Commission) and the Australian and New Zealand College of Anaesthetists (ANZCA) support user-applied labelling standardisation for all injectable medicines and fluids to improve patient safety.

ANZCA addressed the risk to patient safety through its *Guidelines for the safe administration of injectable drugs in anaesthesia*.² The guidelines recommend labelling of medicines used during anaesthesia in a way that is consistent with the Australian/New Zealand Standard AS/NZS 4375:1996,³ and the international standard for labelling drugs in syringes used during anaesthesia (ISO 26825:2008 – *Anaesthetic and respiratory equipment – user-applied labels for syringes containing drugs used during anaesthesia – colours, design and performance*; the Anaesthetic Labelling Standard).⁴

The *National standard for user-applied labelling of injectable medicines, fluids and lines* (the Labelling Standard)⁵ addresses patient risks and is to be used in all circumstances other than those addressed in the Anaesthetic Labelling Standard. Implementation of the Labelling Standard is a mandatory requirement for meeting the National Safety and Quality Health Service (NSQHS) Standards – in particular, NSQHS Standard 4: Medication Safety, and NSQHS Standard 5: Patient Identification and Procedure Matching.

In practice, the Labelling Standard works in conjunction with the Anaesthetic Labelling Standard. Both standards aim to reduce patient harm from medication errors caused by unlabelled, or incompletely labelled injectable medicines and fluids. The application of the two user-applied labelling standards is demonstrated in the poster in Figure 1.

Figure 1 User-applied labelling of medicines and fluids in the open- and closed-practice environments of the perioperative area

National Standard for User-applied Labelling of Injectable Medicines, Fluids and Lines
Perioperative Labelling of Medicines and Fluids

Closed-practice environment (a single patient with established identity)

Label syringes containing medicines used during anaesthesia
 For example:

Morphine mg/mL	Midazolam mg/mL	Atropine mg/mL
Ketamine mg/mL	Levosimendan mg/mL	Suxamethonium mg/mL

Use Anaesthetic Labelling Standard (ISO 26825:2008) compliant labels

Open-practice environment (more than one patient in the same area)

Label all containers (including syringes) containing medicines to continue beyond the operating room

Label containers on the sterile field
 For example:

Medicine..... Conc (units/mL).....	Sodium Chloride 0.9%	Povidone-Iodine
Adrenaline 1 in 1,000	Bupivacaine	Morphine

Use sterile labels and sterile marker pens

Label lines to identify route

Label lines to identify medicine in a dedicated continuous infusion line – for example:

Medicine	Medicine	Morphine	Noradrenaline
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To be read in conjunction with the National Standard for User-applied Labelling of Injectable Medicines, Fluids and Lines © Commonwealth of Australia 2015

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ACORN Endorsed by the Australian College of Perioperative Nurses

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Colour coding medicines labels according to the Anaesthetic Labelling Standard

The Anaesthetic Labelling Standard colour codes medicine labels according to drug class. This code is well recognised and should be implemented in all areas where medicines are administered in syringes during anaesthesia.

Because the Anaesthetic Labelling Standard’s colour coding is well recognised, colour coding medicine labels according to drug class will be applied more broadly on:









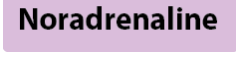
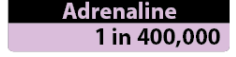




- Medicine labels for dedicated continuous infusion lines,
- And medicine labels for containers (such as syringes and basins) on perioperative sterile fields, including cardiac catheter laboratories.







In addition to the Anaesthetic Labelling Standard, the Labelling Standard also recommends colour coding for anticoagulant and antiplatelet agents (including specifications for heparin and protamine), non-injectable medicines and fluids in the perioperative area, and miscellaneous and high-risk miscellaneous medicines.

Although colour can assist with medicine identification, there are risks when health professionals rely solely on colour. The written word should be emphasised as the primary identifier.

Table 1 describes medicines and associated label colours according to both the Labelling Standard and the Anaesthetic Labelling Standard.

Table 1 User-applied label colours for syringes containing medicines used during anaesthesia

Medicine class	Colour	Medicine examples	Label examples
Induction agents	Yellow	Propofol, ketamine	
Benzodiazepines	Orange	Diazepam, midazolam	
Benzodiazepine antagonists	Orange with white diagonal stripes	Flumazenil	
Muscle relaxants	Fluorescent red or warm red. Exception: suxamethonium (red name reversed out of a black bar on the upper half of the label)	Suxamethonium, pancuronium, vecuronium	 
Relaxant reversal agents	Fluorescent/ warm red with white diagonal stripes	Neostigmine, pyridostigmine	
Opioids	Blue	Morphine, fentanyl, pethidine	
Opioid antagonists	Blue with white diagonal stripes	Naloxone	
Vasopressors	Violet. Exception: adrenaline (violet name reversed out of a black bar on the upper half of the label)	Adrenaline, metaraminol, noradrenaline	  1 in 400,000
Hypotensive agents	Violet with white diagonal stripes	Sodium nitroprusside, glyceryl trinitrate, phentolamine, hydralazine	
Local anaesthetics	Grey	Procaine, lignocaine, bupivacaine, ropivacaine	
Anticholinergic agents	Green	Atropine, glycopyrrolate	
Antiemetics	Salmon	Droperidol, metoclopramide	

Medicine class	Colour	Medicine examples	Label examples
Anticoagulant/ antiplatelet agents ^a	Teal green	Abciximab, bivalirubin, eptifibatide, tirofiban, urokinase	
Heparin ^a	Teal green with solid black border (1–2 mm)	Heparin	
Protamine ^a	Teal green with black diagonal-stripe border (1–2 mm)	Protamine	
Heparinised saline ^a	White with teal green border	Heparinised saline	
Miscellaneous medicines	Black text on white background	Oxytocin	
High-risk miscellaneous medicines	Red text on white background	Potassium chloride, insulin	

^a These labels are a departure from the Anaesthetic Labelling Standard

Note: A concentration prompt on each label is optional, except in the case of adrenaline.

If a medicine is not reflected in Table 1, the general principle for finding the right medicine label colour is to categorise according to primary therapeutic use rather than pharmacological class.

The Commission and ANZCA endorse use of the Labelling Standard and the Anaesthetic Labelling Standard throughout all Australian health services. The use of colour on medicines labels in areas within and beyond anaesthesia should comply with the Anaesthetic Labelling Standard.

References

1. Taxis K, Barber N. Ethnographic study of incidence and severity of intravenous drug errors. *British Medical Journal* 2003; 326:684–687
2. [Guidelines for the safe administration of injectable drugs in anaesthesia \[PDF, 80KB\]](#). Australian and New Zealand College of Anaesthetists, (PS51) 2009, accessed December 15, 2016.
3. User-applied labels for use on syringes containing drugs used during anaesthesia (AS/NZS 4375:1996). Sydney: Standards Australia International Pty Ltd, 1996.
4. International Organization for Standardization. Anaesthetic and respiratory equipment – User- applied labels for syringes containing drugs used during anaesthesia – Colours, design and performance. 1st edition. ISO 26825:2008(E). Geneva: ISO, 2008.
5. [National standard for user-applied labelling of injectable medicines, fluids and lines](#). Australian Commission on Safety and Quality in Health Care, 2015, accessed December 15 2016.