Perioperative Nursing

An Introduction

4TH EDITION

EDITORS

BRIGID M. GILLESPIE

BEN LOCKWOOD

PAULA FORAN

ERIN WAKEFIELD

ELSEVIER

Elsevier Australia. ACN 001 002 357
(a division of Reed International Books Australia Pty Ltd)
475 Victoria Avenue, Chatswood, NSW 2067

ISBN: 978-0-7295-4506-8

Notice
Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds or experiments described herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made. To the fullest extent of the law, no responsibility is assumed by Elsevier, authors, editors or contributors for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

National Library of Australia Cataloguing-in-Publication Data

A catalogue record for this
book is available from the
National Library of Australia

Content Strategist: Melinda McEvoy
Content Project Manager: Arindam Banerjee
Edited by Chris Wyard
Proofread by Katie Millar
Copyrights Coordinator: Ashwini Dhayalan
Cover Designer: Gopalakrishnan Venkatraman
Index by Innodata

Typeset by GW Tech

Printed in

Last digit is the print number: 9 8 7 6 5 4 3 2 1

Contents

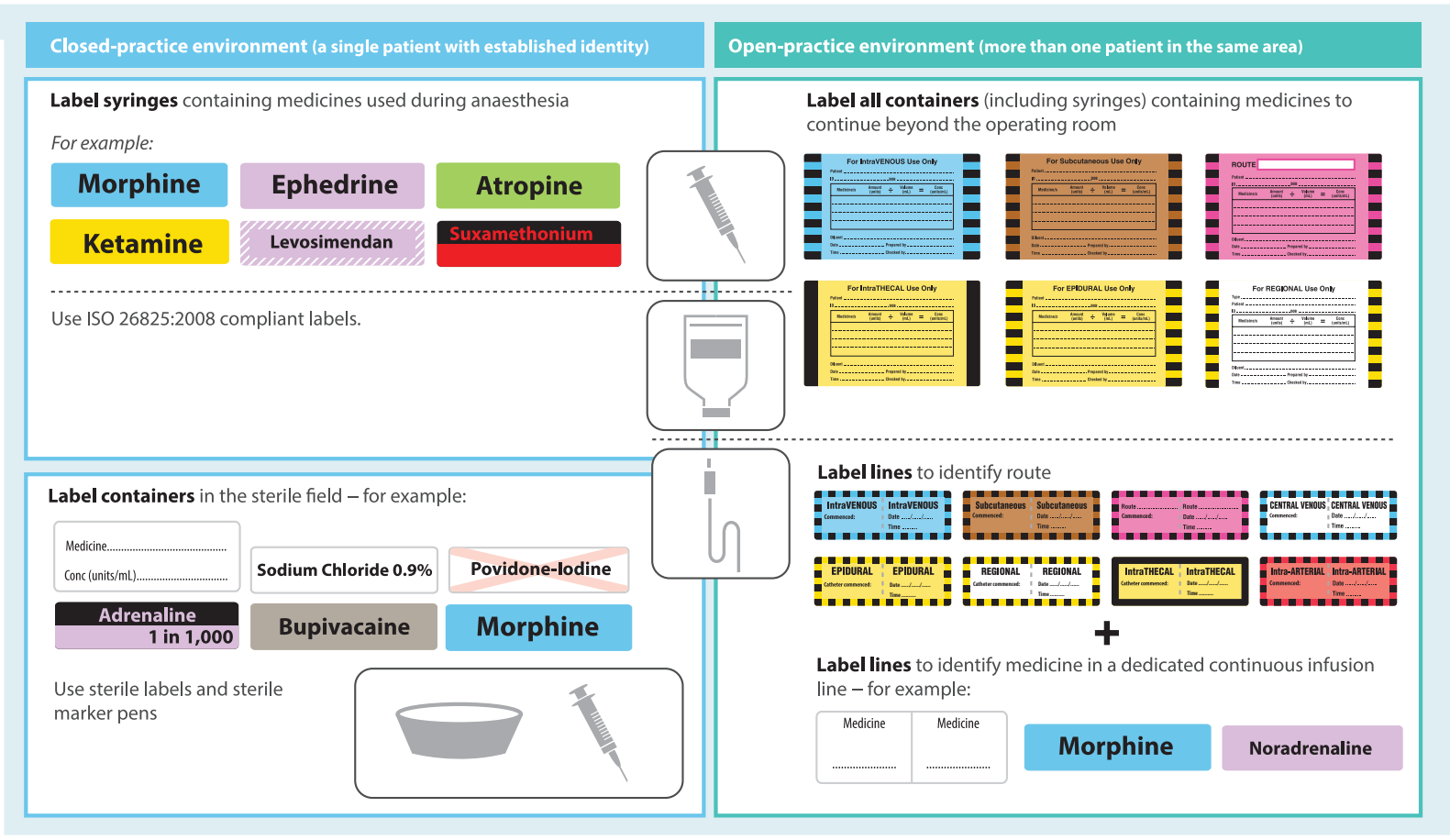

FIG. 4.5 Perioperative labelling of medicines and fluids – comparison of closed-practice and open-practice labels. (Source: Australian Commission on Safety and Quality in Health Care (ACSQHC/the Commission). (2015). *National standard for user-applied labelling of injectable medicines, fluids and lines* (p. 26, Fig. 2). Sydney: Author.)

Local Anaesthetic Toxicity

Toxicity can occur when an accidental overdose of local anaesthetic is administered during a regional or local anaesthetic block or is accidentally injected into the bloodstream. The result is life-threatening circulatory collapse, convulsions, agitation and loss of consciousness. This situation requires immediate cessation of the local anaesthetic injection and resuscitation measures to support circulation and breathing. The administration of lipid emulsion (Intralipid) is also recommended as a treatment for local toxicity (Association of Anaesthetists of Great Britain and Ireland [AAGBI], 2020; Australian and New Zealand Anaesthetic Allergy Group [ANZAAG]/ANZCA, 2022). Feature box 8.4 provides an example of local anaesthetic toxicity.

HAEMODYNAMIC MONITORING DURING ANAESTHESIA

Regardless of the type of anaesthesia or sedation the patient receives, **haemodynamic monitoring** is a vital component of the patient's management and safety. Advances in haemodynamic monitoring have greatly decreased the mortality and morbidity of patients undergoing anaesthesia. Both the ANZCA *PS18 Guideline on monitoring during anaesthesia* (2017) and ACORN (2024) stipulate the minimum standards for monitoring to be provided. The anaesthesia nurse should consult with the anaesthetist regarding the type of monitoring equipment appropriate for the patient and the procedure being undertaken (Fig. 8.20). Monitoring equipment available includes:

- oxygen supply failure alarm
- oxygen analyser
- pulse oximeter
- breathing system disconnection or ventilator failure alarm

FEATURE BOX 8.4
Local Anaesthetic Toxicity

A young woman undergoing cosmetic breast surgery in a Sydney clinic suffered a cardiac arrest, the cause of which was suspected to have been an overdose of a local anaesthetic. She was treated with Intralipid infusion and transferred to hospital where she made a full recovery (Patty, 2015).

(Source: Patty, A. (2015). Cardiac arrest during cosmetic surgery: overdose of local anaesthetic likely. *Sydney Morning Herald*, 28 July.)

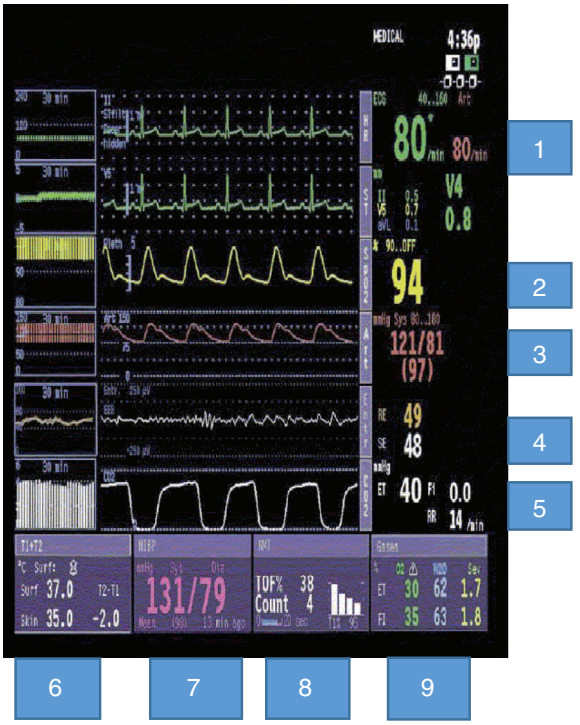

FIG. 8.20 Monitor showing vital signs.
1 ECG
2 Oxygen saturation
3 Arterial BP
4 BIS waveform
5 End-tidal CO_2 (capnography)
6 Temperature
7 NIBP (non-invasive BP)
8 Train of 4 nerve stimulator
9 Gas analysis

- electrocardiograph
- intermittent non-invasive blood pressure monitor
- continuous invasive blood pressure monitor
- temperature monitor
- carbon dioxide monitor
- neuromuscular monitor – a peripheral nerve stimulator, also known as train of four monitor, can be used to assess the level of neuromuscular blockade (ANZCA, 2017)
- volatile anaesthetic agent monitor
- bispectral index (BIS) monitoring (see Fig. 8.20)
- cardiac output, spirometry, central venous pressure (CVP) or transoesophageal echocardiogram (TOE) when clinically indicated (ANZCA, 2017).

FIG. 10.16 Instrument table.

FIG. 10.17 Mayo table.

Care of Instrumentation

Instruments are very expensive, but they can last a long time if they are properly cared for and maintained. Patients deserve the best possible care and this care extends to the provision of clean, functioning instruments (Fuller, 2022).

General rules apply to the care of instrumentation that are particularly relevant to the scenario of Mr James Collins, undergoing a right TKR (see the following Scenario). The instrument nurse for Mr Collins should ensure the following:

- Forceps, clamps and other hinged instruments are inspected at the beginning and end of the procedure to ensure that the jaws or teeth align, and they have no defects and function properly.
- Instruments are used for their intended purpose only. Scissors or clamps that are misused can be forced out of alignment and break. Curved tissue scissors that are used to cut sutures or dressings will soon become blunt.
- Instruments are cleaned intraoperatively to reduce the bioburden. For example, blood and tissue is wiped off instruments including power tools using a moistened sponge (ACORN, 2024d). Bone fragments should be removed from reamers after each use. Excess tissue should be cleaned out of reamers and broaches between each use (Fuller, 2022). Blood or tissue that dries, becomes hard on the serrations of jaws or blades of scissors and impairs the function of the instrument makes cleaning more difficult postoperatively and causes instruments to become stiff and damaged. Instruments with lumens or channels (e.g. Frazier suckers) should be irrigated periodically intraoperatively, to prevent blockages.
- Powered instruments used in Mr Collins' case are heavy and must be stored and passed with caution to avoid injury and inadvertent activation. The safety switch should be activated when not in use.
- Instruments used in Mr Collins' surgery should have the least amount of visible soil as possible at the conclusion of the case and should be sent for reprocessing as soon as possible after surgery (Fuller, 2022; Standards Australia, 2023).
- Damaged or blunt instruments should be set aside for repair or replacement (Fuller, 2022).
- Lighter instruments should always be kept on top of heavier instruments (Fuller, 2022).
- Sharp instruments should be separated (Fuller, 2022). Sharp edges and pointed tips should be protected so that staff members responsible for cleaning are not injured.
- Instruments should be handled gently at all times and should not be thrown, bounced or dropped.

Additionally, for cases using delicate instruments and cables:

- Delicate or microsurgery instruments should be kept separate from other instrumentation. Heavy instruments should never be placed on top of delicate or microsurgery instruments.
- Fibreoptic cables should be coiled loosely and placed on top of or separated from other instrumentation (Fuller, 2022).