

CADTH Reference List

Assessment of Postoperative Vital Signs Frequency

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Authors: Thyna Vu, Quenby Mahood

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Key Message

Two evidence-based guidelines were identified regarding the frequency of assessing postoperative vital signs.

Research Question

What are the evidence-based guidelines regarding the frequency of assessing postoperative vital signs?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were vital signs, monitoring frequency, and postoperative period. CADTH-developed search filters were applied to limit retrieval to guidelines. The search was completed on June 6, 2022, and limited to English-language documents published since January 1, 2017. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in [Table 1](#). Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open-access full-text versions of evidence-based guidelines were reviewed when available, and relevant recommendations were summarized.

Results

Two evidence-based guidelines were identified regarding the frequency of assessing postoperative vital signs.^{1,2}

Additional references of potential interest that did not meet the inclusion criteria but provided guidance and recommendations related to the assessment of postoperative vital signs for the treatment of postoperative adults are summarized in [Appendix 1](#). Other articles of potential interest are provided in [Appendix 2](#).

Table 1: Selection Criteria

Criteria	Description
Population	Adult patients who were postoperative
Intervention	Assessment of postoperative vital signs
Comparator	Not applicable
Outcomes	Recommendations regarding the frequency of assessing postoperative vital signs
Study designs	Evidence-based guidelines

Overall Summary of Findings

Two evidence-based guidelines were identified regarding the frequency of assessing postoperative vital signs.^{1,2} The American Society of Anesthesiologists Task Force¹ recommends that after sedation or analgesia, patients should have their oxygenation monitored continuously until they are no longer at risk for hypoxemia or respiratory depression. The task force also recommends monitoring patients' ventilation and circulation at regular intervals (e.g., every 5 to 15 minutes) until patients are suitable for discharge.¹ The recommendations for bariatric surgery by de Raaff et al.² recommends continuous monitoring of vital signs during the early postoperative period until patients are no longer at risk for respiratory depression.

References

Guidelines and Recommendations

1. Practice guidelines for moderate procedural sedation and analgesia 2018: a report by the American Society of Anesthesiologists Task Force on Moderate Procedural Sedation and Analgesia, the American Association of Oral and Maxillofacial Surgeons, American College of Radiology, American Dental Association, American Society of Dentist Anesthesiologists, and Society of Interventional Radiology. *Anesthesiology*. 2018;128:437–479. [PubMed](#)
See: Table 5. Recovery and Discharge Criteria after Sedation and Analgesia; Guidelines – Recommendations for Recovery Care
2. de Raaff CAL, de Vries N, van Wagenveld BA. Obstructive sleep apnea and bariatric surgical guidelines: summary and update. *Curr Opin Anaesthesiol*. 2018;31(1):104-109. [PubMed](#)

Appendix 1: Summary of Identified Recommendations

The following publications did not meet the methodological criteria to be considered an evidence-based guideline, and therefore were not eligible for inclusion in the main body of this report. However, these 5 publications³⁻⁸ provided guidance and/or recommendations relevant to the frequency of assessing postoperative vital signs. A detailed summary of recommendations is available in [Table 2](#).

One guidance document³ used a consensus methodology with a modified Delphi approach; the methodology was unclear for the other 5 publications.⁴⁻⁸ There was variation in the populations, including adults following operations in general,^{6,7} elective non-cardiac surgery,³ orthopedic surgery,⁵ gynecology, oncology, and urogynecology surgeries,⁸ and post-anesthesia.⁴ Four publications noted that the frequency of assessing vital signs should depend on the clinical context (e.g., type of surgery) and/or patient status.^{3,4,6,8} Three publications indicated that the frequency of vital signs assessment could be reduced over time,^{4,6,8} with 2 specifying that reducing the frequency depends on the patient's status.^{6,8}

Specific recommendations regarding frequency for assessing vital signs during the postoperative period varied across publications. The American Association of Nurse Anesthesiology⁴ recommends that for post-anesthesia, vital signs should be assessed every 15 minutes for the first hour, then every 30 minutes until the patient moves into phase II (after the patient has returned to baseline vital signs and discharged to the inpatient setting or intensive care unit). The Canberra Hospital and Health Services recommends assessing vital signs every half hour for the first 2 hours, then reducing the frequency to hourly (depending on patient status), and then to every 4 hours.⁶ They also recommend that temperature should be recorded at least every 4 hours.⁷ For patients who had local anesthetic who meet certain criteria, monitoring may start at hourly and can decrease to every 4 hours.⁶ The King Edward Memorial Hospital's Obstetrics and Gynecology department's clinical practice guideline⁸ provides similar guidance, recommending that following major surgeries, vital signs are monitored every half hour before reducing to hourly and then every 4 hours. For minor surgeries, they also recommend starting at once an hour and reducing to every 4 hours if the patient is stable.⁸

Table 2: Summary of Recommendations in Identified Guidelines

Guideline development group (year)	Population	Summary of recommendations
Methodology – Consensus		
Perioperative Quality Initiative (2019) ³	Adults following elective non-cardiac surgery	<p>Recommends that the frequency of postoperative surveillance should be determined by patient status and clinical context</p> <p>States that routine current practice recommends vital signs are measured every 4 to 6 hours; they recommend increasing the frequency of blood pressure monitoring for certain patients (e.g., patients with increasing or decreasing blood pressure, or patients that require tighter targets)</p>
Unclear Methodology		
American Association of Nurse Anesthesiology (2019) ⁴	Post-anesthesia patients	<p>During phase I (focus on patient's recovery from anesthesia and return to baseline vital signs): monitoring requirements depend on the facility and the patient's condition</p> <ul style="list-style-type: none"> American Society of PeriAnesthesia Nurses recommends "assessing and documenting vital signs at least every 15 minutes during the first hour and then every 30 minutes until discharge from Phase I" <p>During phase II (focus on continued recovery; after patient has been discharged to the inpatient setting or intensive care unit): frequency for evaluating vital signs depends on the facility's policy; it should begin on arrival and end at discharge</p>

Guideline development group (year)	Population	Summary of recommendations
Canberra Hospital and Health Services – Orthopedic Surgery – Pre and Post Operative Management in Adults (2018)⁵	Adults following orthopedic surgery	Refers to guidance from separate documents: <ul style="list-style-type: none"> • Day 0 (first 24 hours) post-operation: Post-Operative Handover and Observations (First 24 hours) – Adult⁶ • Days 1 to 4 post-operation: Adult vital signs and Early warning scores procedure⁷ In general, recommends that during first 24 hours post-operation, vital signs should be recorded “4 hourly”
Canberra Hospital and Health Services – Post Operative Handover and Observations - Adult Patients (First 24 hours) (2018)⁶	Postoperative adults	“Record vital signs... as per post anaesthetic/ operative observation regime or more frequently as prescribed” <p>Frequency of vital sign assessment depends on patient’s MEWS, which considers their respiratory rate, oxygen saturation, temperature, blood pressure, pulse, and level of consciousness</p> <p>For general/epidural/spinal anesthetic procedures, or regional nerve block (brachial, ulna, femoral or digital), vital signs should be checked:</p> <ul style="list-style-type: none"> • First 2 hours: half hourly • Next 4 hours: if MEWS \geq 4, continue half hourly; if MEWS < 4, decrease to hourly • For at least 24 hours: 4th hourly <p>For local anesthetic:</p> <ul style="list-style-type: none"> • First 4 hours: if MEWS \geq 4, continue to check vital signs half hourly; if MEWS < 4 and patient is not a day surgery patient, check hourly • Next 24 hours or until discharge: 4th hourly
Canberra Hospital and Health Services – Vital Signs & Early Warning Scores (2018)⁷	Adults (also provides guidance for children, maternal, and neonatal)	Recommends that a full set of vital signs be documented at least 8 hourly unless otherwise specified, with increased frequency post-procedure (as ordered) or post-operatively as per Post-Operative Handover and Observations Procedure ⁶ <p>Any staff member can increase the frequency of assessing vital signs; some circumstances are appropriate to decrease or increase frequency</p> <p>For patients who are having a day procedure and/or are having frequent vital sign measurements, they may not require temperature measured every time. If vital signs are being measured frequently, temperature should be recorded at least every 4 hours</p>
King Edward Memorial Hospital – Obstetrics & Gynaecology (2017)⁸	Postoperative patients following gynecology, oncology, or urogynecology surgeries	Following minor surgeries: <ul style="list-style-type: none"> • Immediately assess vital signs • Repeat within 1 hour • If patient is hemodynamically stable, repeat in 4 hours or before discharge; if hemodynamically unstable, repeat more frequently Following major surgeries: <ul style="list-style-type: none"> • Immediately assess vital signs • First 2 hours: half hourly • Next 2 hours: 1 hourly • Next 2 hours: 2 hourly • Next 24 hours: 4 hourly, providing patient’s condition remains stable

MEWS = Modified Early Warning Score (MEWS).

Guidelines and Recommendations

Alternative Methodology – Consensus

3. McEvoy MD, Gupta R, Koepke EJ, et al. Perioperative quality initiative consensus statement on postoperative blood pressure, risk and outcomes for elective surgery. *Br J Anaesth*. 2019;122(5):575-586. [PubMed](#)

Unclear Methodology

4. Postanesthesia care: practice considerations. Park Ridge (IL): American Association of Nurse Anesthesiology; [2019]; [https://www.aana.com/docs/default-source/practice-aana-com-web-documents-\(all\)/professional-practice-manual/postanesthesia-care-practice-considerations.pdf?sfvrsn=677a6ac5_10](https://www.aana.com/docs/default-source/practice-aana-com-web-documents-(all)/professional-practice-manual/postanesthesia-care-practice-considerations.pdf?sfvrsn=677a6ac5_10). Accessed 2022 June 9.
See: Phases of Postanesthesia Care (p.1-3)
5. Canberra Hospital and Health Services clinical procedure: orthopaedic surgery: pre and post operative management in adults. Garran (AUS): ACT Health, Canberra Hospital and Health Services; 2018; <https://www.health.act.gov.au/sites/default/files/2019-02/Orthopaedic%20Surgery%20%E2%80%93%20Pre%20and%20Post%20Operative%20Management%20in%20Adults.docx>. Accessed 2022 June 9.
See: Section 1 – Standard pre and post operative care for all orthopaedic patients (p.4-6)
6. Canberra Hospital and Health Services clinical procedure: post operative handover and observations: adult patients (first 24 hours). Garran (AUS): ACT Health, Canberra Hospital and Health Services; 2018; <https://www.health.act.gov.au/sites/default/files/2020-02/Post%20Operative%20Handover%20and%20Observations%20-%20Adult%20Patients%20%28First%2024%20hours%29.docx>. Accessed 2022 June 9.
See: Section 4 – Post-Anaesthetic Observation (p. 7-8)
7. Canberra Hospital and Health Services clinical procedure: vital signs & early warning scores. Garran (AUS): ACT Health, Canberra Hospital and Health Services; 2018; <https://health.act.gov.au/sites/default/files/2018-09/Vital%20Signs%20and%20Early%20Warning%20Scores.pdf>. Accessed 2022 June 9.
See: Section 1 – Adult Vital Signs – Procedure (p. 4-8)
8. Perioperative preparation and management. Clinical practice guideline. Subiaco (AUS): Government of Western Australia; North Metropolitan Health Service, Women and Newborn Health Service; King Edward Memorial Hospital, Obstetrics & Gynecology; 2017; https://www.kemh.health.wa.gov.au/~/_media/HSPs/NMHS/Hospitals/WNHS/Documents/Clinical-guidelines/Obs-Gyn-Guidelines/Perioperative-Preparation-Management.pdf?thn=0. Accessed 2022 June 9.
See: Minor surgery: Gynaecology, oncology & urogynaecology: Care following - Procedure - step 2 (p. 8-9); Major surgery: Gynaecology, oncology or urogynaecology: Care following - Procedure - On return to the ward from PACU (p. 11)

Appendix 2: Additional References

Previous CADTH Reports

9. Vital sign monitoring in long-term care: a 2021 update. (*CADTH reference list: summary of abstracts*). Ottawa (ON): CADTH; 2021; <https://www.cadth.ca/sites/default/files/pdf/htis/2021/RB1605%20Vital%20Signs%20Monitoring%20Final.pdf>. Accessed 2022 June 9.
10. The assessment of postoperative vital signs: clinical effectiveness and guidelines. (*CADTH rapid response report: reference list*). Ottawa (ON): CADTH; 2017; [https://www.cadth.ca/sites/default/files/pdf/htis/2017/RA0897 Assessment of Postop Vital Signs Final.pdf](https://www.cadth.ca/sites/default/files/pdf/htis/2017/RA0897%20Assessment%20of%20Postop%20Vital%20Signs%20Final.pdf). Accessed 2022 June 9.