

BIS™ Advance monitor

Perfecting your art. Advancing patient care.

ERAS™* guidelines help optimize outcomes^{1,2}



Medtronic

New paradigm. Evidence-based.

You want the best possible outcomes for your patients during and after surgery. It's your mission. It's your art. A new paradigm called Enhanced Recovery After Surgery™* (ERAS™*) provides multiple evidence-based guidelines that can help you maximize patients' health before, during, and after surgery.^{1,2}

One of the key ERAS™* protocols is an evidence-based approach to fluid management throughout the perioperative journey. This includes encouraging oral fluid intake and discontinuing IV fluids as soon as possible.³ Other tenets of the multi-modal ERAS™* guidelines include minimizing opioid pain management and encouraging early mobility post surgery.¹

ERAS™* associated improved outcomes include:

- Shorter length of stay²
- Reduced costs²
- Fewer complications²
- Lower incidence of postoperative delirium^{4,5}
- Earlier return of gastrointestinal function²

All without higher readmission or mortality rates²

Studies show that using less anesthetic agent improves outcomes:

- When using TIVA anesthetic approach^{6,7}
- When following ERAS™* protocols^{2,5}
- In elderly patient populations at risk for postoperative neurocognitive disorders⁸⁻¹² (brain monitoring is recommended in multiple society guidelines^{1,13-16})

BIS™ technology

**The market leader
in processed EEG
solution for depth
of anesthesia**



Personalize anesthesia. Improve outcomes.

Many of ERAS™ Society guidelines recommend using anesthetic depth monitoring, namely Bispectral Index™ (BIS™) monitoring, to avoid complications associated with too much or too little anesthesia.¹ With its validated algorithm, BIS™ monitoring accurately reflects the anesthetic effect on your patient's brain, empowering you to personalize dosing.

- Reduce primary anesthetic delivery by as much as 38%^{6,8,17,18}
- Improve emergence and recovery times^{6, 17, 19, 20}
- Promote faster wake-up, recovery, and discharge from the PACU²¹
- Reduce postoperative delirium up to 29%⁸⁻¹²



BIS™ Advance monitor Easy to use. Easy to configure.

With a simple, configurable interface, the next-generation BIS™ Advance monitor is engineered to help make your workflow more efficient and help optimize anesthesia dosing to improve patient outcomes. The completely redesigned BIS™ Advance monitor gives you:



- A large, high-resolution, touchscreen monitor that's simple to read
- Configurable data and settings so you can see just the information you want
- Color-coordinated data to quickly review readings
- The ability to track total suppression time detected during the procedure
- Built-in troubleshooting guides with information on clinical parameters and data significance

To request a full clinical demo of the BIS™ Advance monitor, contact your Medtronic representative.

Easy output. Easy to move.

The BIS™ Advance monitor is engineered to help make your workflow more efficient while giving you the insight you need.

- Save time with data output protocols that enable connectivity to electronic medical records (EMRs)
- Maintain continuous monitoring when moving between care settings



The BIS™ monitoring system should not be used as the sole basis for diagnosis or therapy and is intended only as an adjunct in patient assessment. Reliance on the BIS™ monitoring system alone for intraoperative anesthetic management is not recommended.

1. Guidelines - ERAS™ Society. ERAS™ Society. <https://erassociety.org/guidelines/>. Published 2022. Accessed September 27, 2022.
2. Lau CSM, Chamberlain RS. Enhanced recovery after surgery programs improve patient outcomes and recovery: A meta-analysis. *World J Surg.* 2017;41: 899-913. doi: 10.1007/s00268-016-3807-4.
3. Feldheiser A, Aziz O, Baldini G et al. Enhanced recovery after surgery (ERAS) for gastrointestinal surgery, part 2: consensus statement for anaesthesia practice. *Acta Anaesthesiol Scand.* 2015;60(3):289-334. doi:10.1111/aas.12651.
4. Kurbegovic S, Andersen J, Krenk L, Kehlet H. Delirium in fast-track colonic surgery. *Langenbecks Arch Surg.* 2015; 400:513-516.
5. Thillainadesan J, Yumol MF, Suen M, Hilmer S, Naganathan V. Enhanced recovery after surgery in older adults undergoing colorectal surgery: a systematic review and meta-analysis of randomized controlled trials. *Diseases of the Colon & Rectum.* 2021 May 11;64(8):1020-8.
6. Lewis SR, Pritchard MW, Fawcett LJ, Punjasawadwong Y. Bispectral index for improving intraoperative awareness and early postoperative recovery in adults. *Cochrane Database Syst Rev.* 2019;9:CD003843. doi:10.1002/14651858.CD003843.pub4.
7. Gao WW, He YH, Liu L, Yuan Q, Wang YF, Zhao B. BIS monitoring on intraoperative awareness: a meta-analysis. *Current Med Sci.* 2018 Apr;38(2):349-53.
8. Punjasawadwong Y, Chau-In W, Laopaiboon M, Punjasawadwong S, Pin-On P. Processed electroencephalogram and evoked potential techniques for amelioration of postoperative delirium and cognitive dysfunction following non-cardiac and non-neurosurgical procedures in adults. *Cochrane Database Syst Rev.* 2018;5:CD01128.
9. Evered LA, Chan MT, Han R, et al. Anesthetic depth and delirium after major surgery: a randomised clinical trial. *Br J Anaesth.* 2021; 27 (5): 704-712.
10. Chan M, Cheng B, Lee T, et al. BIS-guided anesthesia decreases postoperative delirium and cognitive decline. *J Neurosurg Anesthesiol.* 2013; 25(1), 33-42.
11. Radtke FM, Franck M, Lendner J, et al. Monitoring depth of anaesthesia in a randomized trial decreases the rate of postoperative delirium but not postoperative cognitive dysfunction. *Br J Anaesth.* 2013; 110: i98-i105.
12. Sieber FE, Zakriya K, Gottschalk A, et al. Sedation depth during spinal anesthesia and the development of postoperative delirium in elderly patients undergoing hip fracture repair. *Mayo Clin Proc.* 2010; 85(1), 18-26.
13. Nunes R, Fonseca N, Simões C., et al. Brazilian consensus on anesthetic depth monitoring. *Braz J Anesthesiol.* 2015;65(6):427-436. doi: 10.1016/j.bjane.2015.10.001.
14. Checketts M, Alladi R, Ferguson K., et al. Recommendations for standards of monitoring during anaesthesia and recovery 2015: Association of Anaesthetists of Great Britain and Ireland. *Anaesthesia.* 2016;71(1):85-93. doi: 10.1111/anae.13316.
15. Inouye SK, Sharon K. et al. Postoperative Delirium in Older Adults: Best Practice Statement from the American Geriatrics Society. Intraoperative Measures to Prevent Delirium. *J Am Coll Surg.* 2014; 220(2):136-148.e1.
16. Guideline essentials: Moderate sedation key takeaways. Association of Perioperative Registered Nurses. http://aorn.org/-/media/aorn/essentials/moderate-sedation/files/keytakeaways_moderatesedation_021716.pdf. Published 2015.
17. Song D, Joshi GP, White PF. Titration of volatile anesthetics using bispectral index facilitates recovery after ambulatory anesthesia. *Anesthesiology.* 1997;87(4):842-848.
18. Luginbuhl M, Wutrich S, Petersen-Felix S, Zbinden AM, Schnider TW. Different benefit of bispectral index (BIS) in desflurane and propofol anesthesia. *Acta Anaesthesiol Scand.* 2003;47(2):165-173. <https://www.ncbi.nlm.nih.gov/pubmed/12631045>.
19. Wong J, Song D, Blanshard H, Grady D, Chung F. Titration of isoflurane using BIS index improves early recovery of elderly patients undergoing orthopedic surgeries. *Can J Anaesth.* 2002;49(1):13-18. doi:10.1007/BF03020413.
20. Gan TJ, Glass PS, Windsor A, et al. Bispectral index monitoring allows faster emergence and improved recovery from propofol, alfentanil and nitrous oxide anesthesia. *Anesthesiology.* 1997;87(4):808-815. doi:10.1097/00000542-199710000-00014.
21. White PF, Ma H, Tang J, Wender RH, Sloninsky A, Kariger R. Does the use of electroencephalographic bispectral index or auditory evoked potential index monitoring facilitate recovery after desflurane anesthesia in the ambulatory setting? *J Am Soc Anesthesiologists.* 2004 Apr 1;100(4):811-7.

medtronic.com/bisadvance

Medtronic

©2024 Medtronic. Medtronic logo, and Engineering the extraordinary are trademarks of Medtronic.™ Third-party brands are trademarks of their respective owners. All other brands are trademarks of a Medtronic company.
02/2024 - US-PM-2300424 - [WF#7455665]