# PERSONALIZE ANESTHESIA

## Best practice and position statements for brain function monitoring

Each patient is different. Each case is different. Bispectral Index™ (BIS™) brain function monitoring lets you personalize anesthetic dosing every time. That's why leading organizations support the use of brain function monitoring during surgical procedures involving anesthesia. BIS™ technology-guided anesthetic dosing may:

- Decrease the rate of postoperative delirium in certain patients[1,2]
- Reduce primary anesthetic delivery by as much as 50%[2]
- Promote faster wake-up, recovery, and discharge from the PACU[3]

### April 2005

#### American Association of Nurse Anesthetists

If appropriate, the anesthesia care plan should include pharmacologic agents, anesthesia techniques and patient monitoring techniques considered beneficial in reducing the incidence of unintended awareness. Brain function monitoring, if available, should be considered particularly in situations where the risk of intraoperative awareness is increased.[4]

### April 2006

#### American Society of Anesthesiologists

The ASA members agree with the use of such [brain function] monitors for patients with conditions that may place them at risk, patients requiring smaller doses of general anesthetics and patients undergoing cardiac surgery.[5]

### October 2014

#### American Geriatrics Society

Practitioners may use "processed electroencephalographic monitors of anesthetic depth during intravenous sedation or general anesthesia of older patients to reduce postoperative delirium."[6]

### October 2015

#### ANESTHESIOLOGY® 2015 Annual Meeting

New research presented showed that monitoring the depth of anesthesia and oxygenation levels may reduce postoperative delirium in older cardiac patients.[7]

### October 2015

#### The Association of Anaesthetists of Great Britain and Ireland

With patients anesthetized with total intravenous techniques and neuromuscular blocking drugs, use depth of anaesthesia monitors (e.g., processed EEG monitoring) to reduce the risk of accidental awareness during general anaesthesia.[8]

### November 2015

#### Brazilian Consensus on Anesthetic Depth Monitoring

Using a BIS™ monitor to monitor the depth of anesthesia can help reduce postoperative delirium (POD) and postoperative cognitive dysfunction (POCD). It facilitates anesthetic titration and decreases brain exposure to high doses of anesthetic agents, especially in the elderly.

Compared to monitoring clinical signs and symptoms, using devices to monitor anesthetic depth (i.e., EEG monitoring) is associated with:

- Reduced inhaled and intravenous anesthetic consumptions
- Reduced anesthetic recovery time

For high-risk patients under balanced general anesthesia, we suggest using brain electrical activity monitors to prevent intraoperative awakening. We highly recommend using brain electrical activity monitoring for patients under total intravenous anesthesia, which is a risk factor for intraoperative awakening.[9]

### February 2016

#### Association of periOperative Registered Nurses

Perioperative registered nurses should use an objective scale to assess and document depth of sedation, and to measure sedation level, they may use bispectral index (BIS™) monitoring.[10]

**To learn more about anesthesia optimization, visit**
**medtronic.com/covidien/products/brain-monitoring**

**1.** 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:i98-105. **2.** 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. **3.** Punjasawadwong Y, Boonjeungmonkol N, Phongchiewboon A. Bispectral index for improving anaesthetic delivery and postoperative recovery. *Cochrane Database Syst Rev.* 2014;(6):CD003843. **4.** Position statement 2.12. Unintended awareness under general anesthesia approved by the AANA Board of Directors. *AANA Journal.* 2006;74:15-18. **5.** American Society of Anesthesiologists. Practice advisory for intraoperative awareness and brain function monitoring. *Anesthesiology.* 2006;104:847–864. **6.** Inouye SK, Robinson T, Blaum C, 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. **7.** Gauge N, Kunst G, Salaunkey K, et al. Optimization of depth of anesthesia and cerebral oxygenation in elderly patients undergoing coronary artery bypass graft surgery - a randomized controlled trial: feasibility and effects on postoperative delirium and cognitive function. Abstract presented at: ANESTHESIOLOGY® 2015 annual meeting; October 27, 2015; San Diego, CA. **8.** 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. **9.** 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. **10.** 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.



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