



# Using BIS monitoring in ICU – Golden period for extubation

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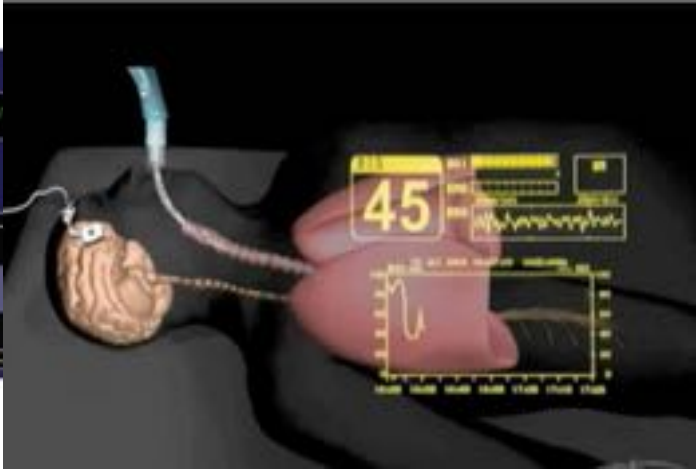
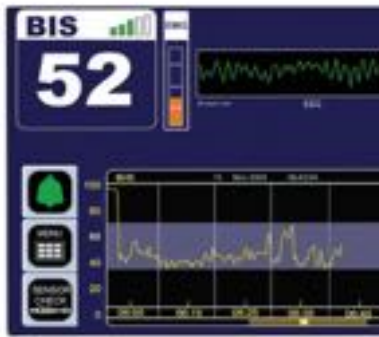
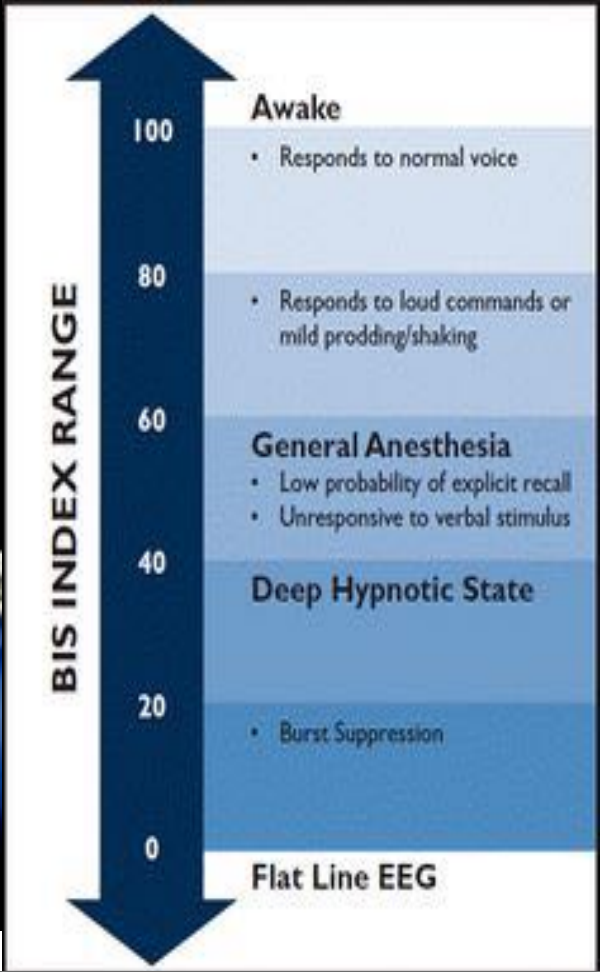
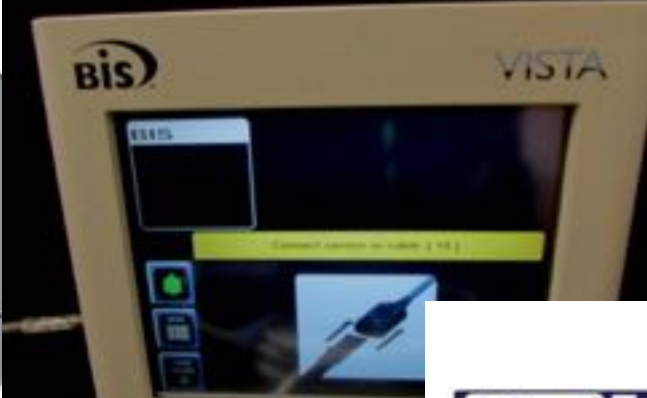


# About...

Bispectral index (BIS) is a measure used to monitor the effects of anesthesia and sedation on the brain. It is considered the new "vital sign" that allows the establishment of adequate anesthesia to anesthesiologists and nurses and it allows postoperative monitoring of the rate of consciousness and the effects of anesthesia and analgesia, thus improving patient care.



During the evolution of modern anesthesia patient assessment of the rate of consciousness and the depth of anesthesia it underwent a gradual change and improvement. Despite improvements in the assessment of the cardiovascular system during anesthesia, direct determination of anesthetic and sedatives effects on the central nervous system remains a challenge. It is believed that hemodynamic responses do not necessarily provide the correct responses to the central nervous system on administration of anesthetic and are therefore unreliable indicator of brain status (Flaishon et al., 1997). This final paper presents analgosedation in intensive care unit, subjective method of monitoring the state of consciousness and objective method, the bispectral index.



# History of BIS

- ⌘ Start the application of the BIS in the world - 1994
- ⌘ Start applying the BIS at UHC Zagreb - 2011

# CROATIA - UHC ZAGREB

In the beginning ...

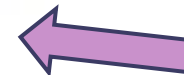
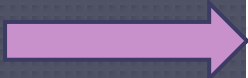
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Now ...

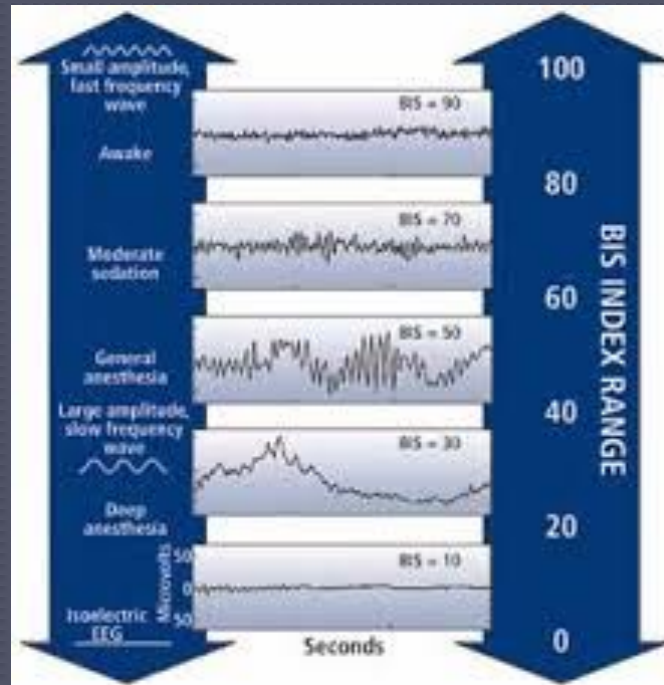
Endoscopy, radiology and ICU

# The range of values

BIS and Clinical Correlation	
BIS	Sedation degree
90-100	Awaken
70-90	Light to moderate sedation
60-70	Superficial anesthesia
45-60	Adequate anesthesia
0-45	Deep anesthesia

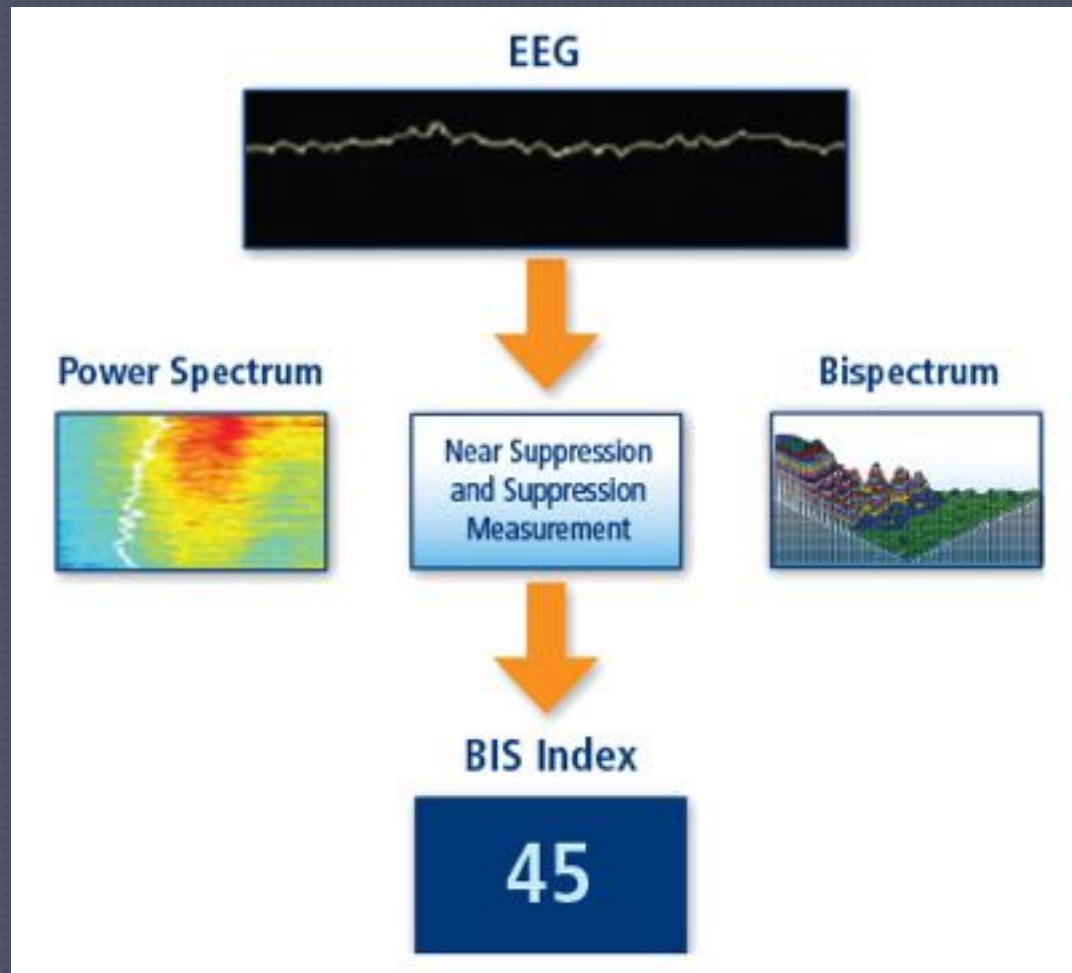


# BIS INDEX





# ALGORITHM



# APPLICATION in ICU

- Guide during the sedation of patients in intensive care unit
- Measures to maintain proper sedation
- Guide for monitoring the release of patients from anesthesia

*Vital Signs + Sedation Scales + BIS Monitoring*

**Consciousness/Sedation**

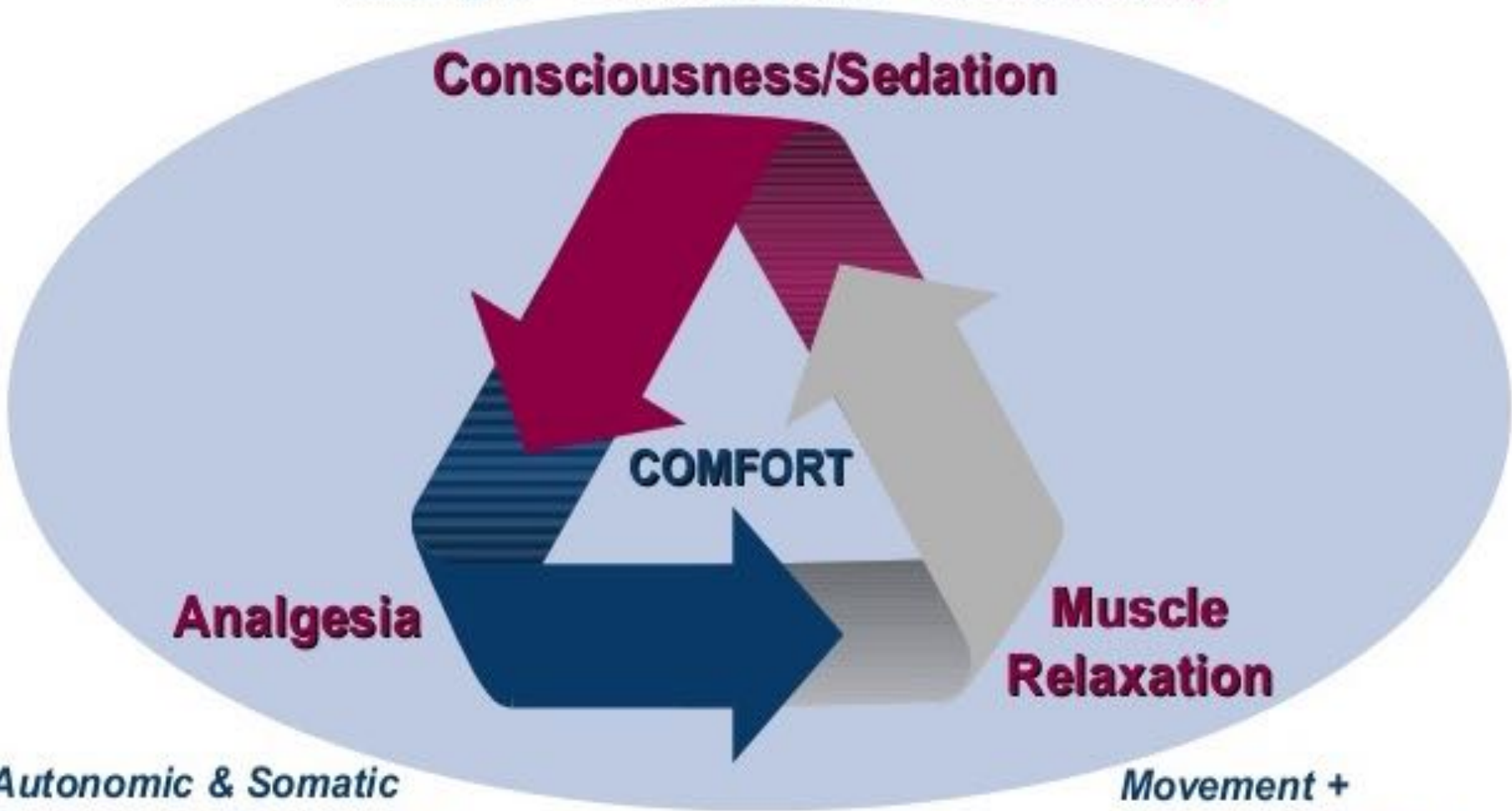
**COMFORT**

**Analgesia**

**Muscle  
Relaxation**

*Autonomic & Somatic  
Response + Pain Scales*

*Movement +  
Nerve Stimulator*

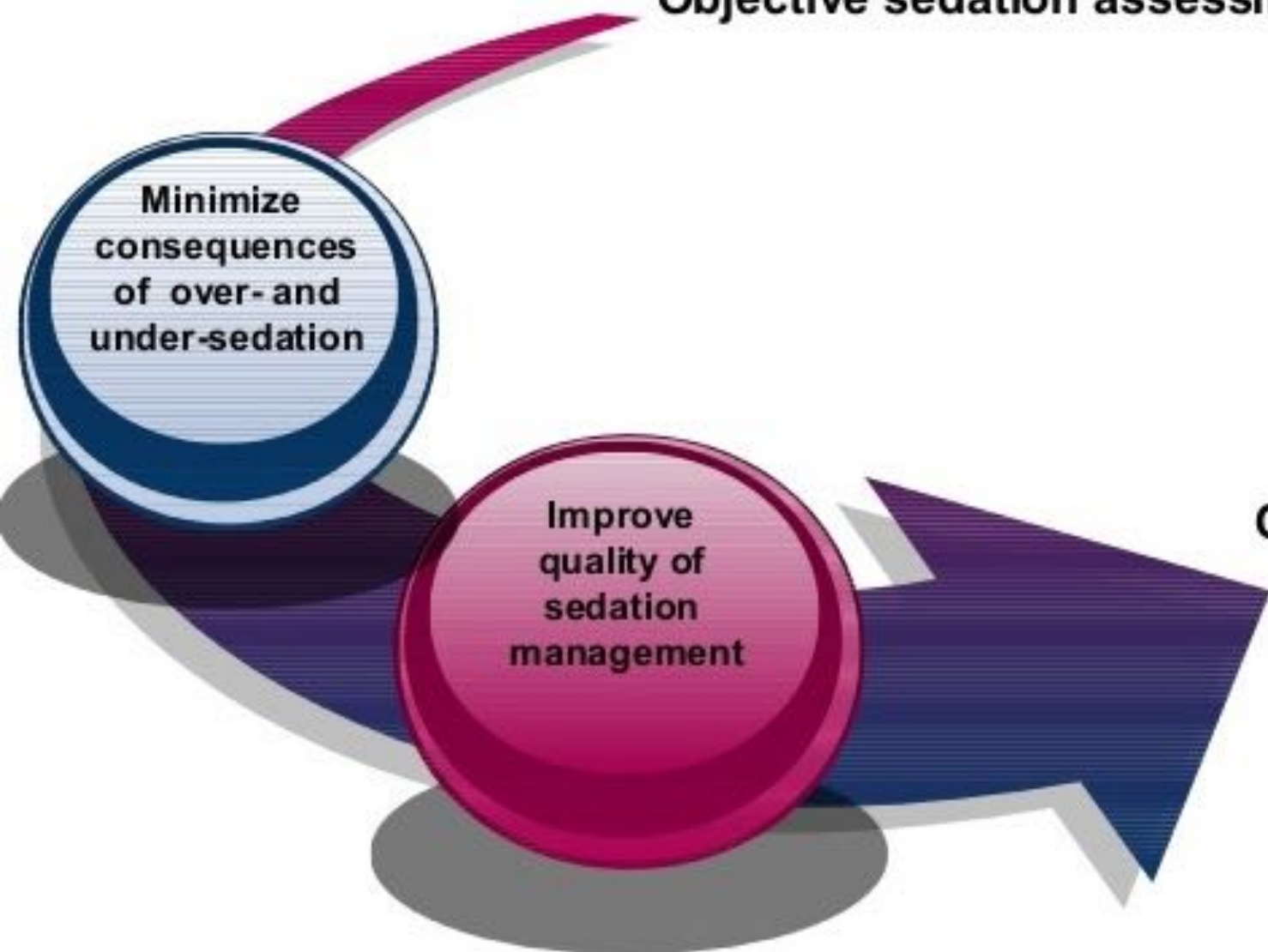


## Objective sedation assessment

Minimize  
consequences  
of over- and  
under-sedation

Improve  
quality of  
sedation  
management

Optimize clinical  
and economic  
outcomes



# COMPLICATIONS

- ❖ Prolonged time on mechanical ventilation
- ❖ Prolonged time staying in ICU
- ❖ Increased risk of delirium
- ❖ Reduced mobility
- ❖ Impaired wound healing
- ❖ Additional costs of care

# COMPLICATIONS

- ❖ Fear, anxiety, irritability
- ❖ Unpleasant memories
- ❖ Prolonged time care

# ADVANTAGES OF BIS

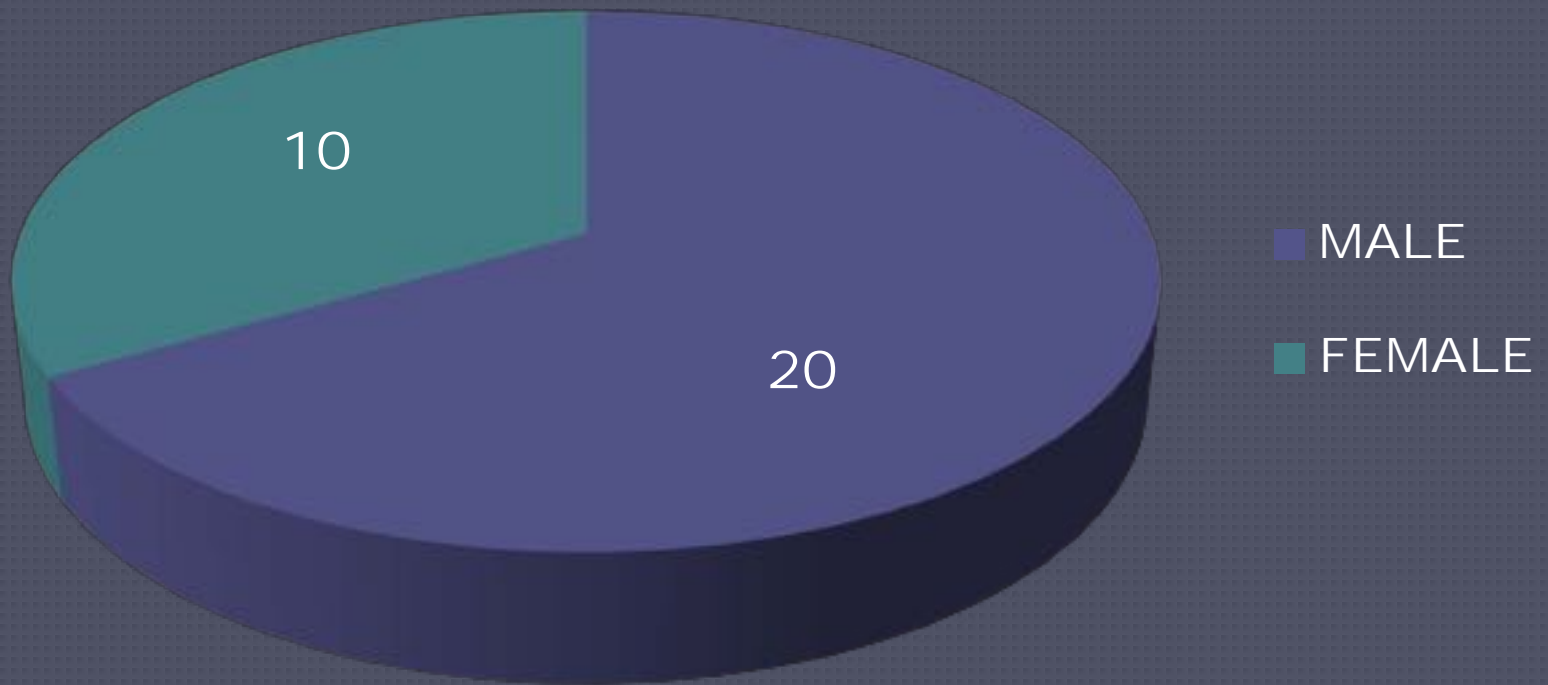
- ❖ Faster wake up from anesthesia
- ❖ Less likelihood of anxiety and agitation
- ❖ Hemodynamic stability
- ❖ Reduced time spent on mechanical ventilation
- ❖ Lower costs of treatment

# Our ICU at UHC Zagreb

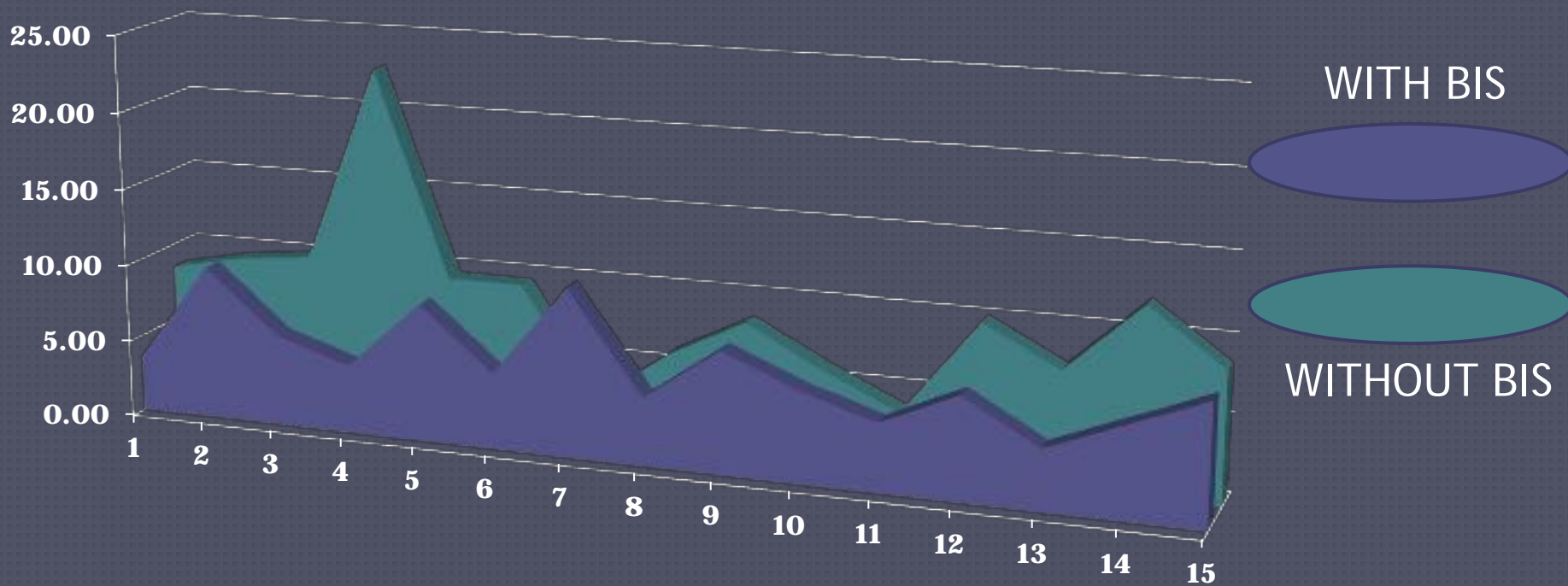




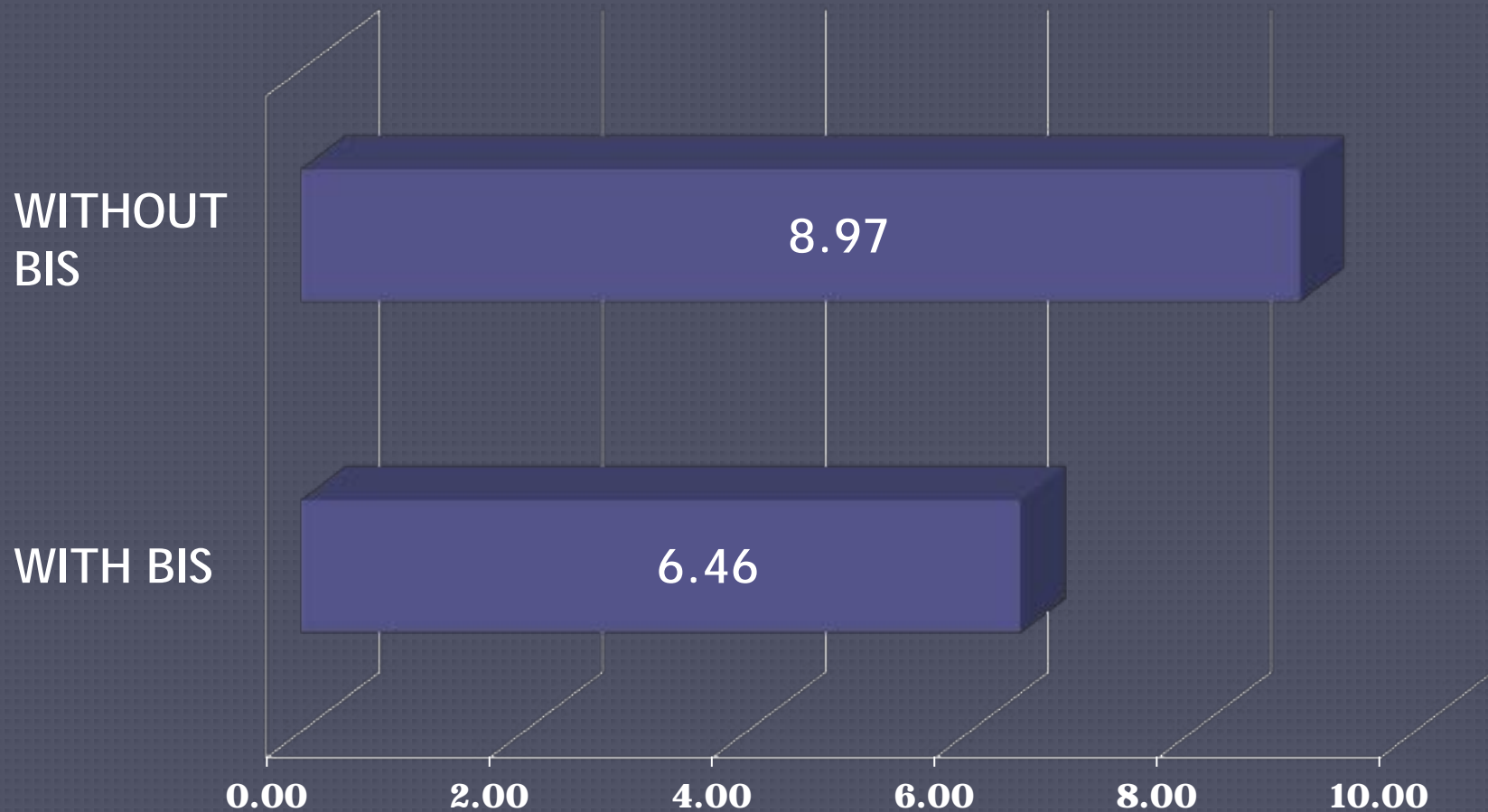
# Small ward research in 2015...



# TIME ON MV




# AVERAGE HOURS at MV



# CONCLUSION



## Bispectral index monitoring

Carl Rosow, MD, PhD  <sup>a, 1</sup>, Paul J. Manberg, PhD<sup>b</sup>

## Potential Benefits of Bispectral Index Monitoring in Critical Care A Case Study



DaiWai M. Olson, RN, BSN, CCRN, Susan M. C CCRN, Gary E. Macy, RN, MSN, ACNP, LorieA Helen A. Cook, RN, MSN

## Update on Bispectral Index monitoring <sup>☆</sup>

Jay W. Johansen, MD, PhD  <sup>1</sup>  (Associate Professor of Clinical Anesthesiology)

## Role of the Bispectral Index in Sedation Monitoring in the ICU

Bispectral index monitoring to prevent awareness during anaesthesia: the B-Aware randomised controlled trial

Dr PS Myles, MBBS<sup>a, b, c, d</sup>  , K Leslie, MBBS<sup>e, f</sup>, J McNeil, MBBS<sup>c, d</sup>, A Forbes, <sup>d</sup>, MTV Chan, MBBS<sup>g</sup>, for the B-Aware trial group

How Reliable is the Bispectral Index in Critically Ill Patients? A Prospective, Comparative, Single-Blinded Observer Study

Stanley A. Nasraway Jr, MD, FCCM; Eugene C. Wu, MD; Ruth M. Kelleher, RN, MS, C; Cynthia M. Yasuda, RN, MA, CS; Anne M. Donnelly, RN, BSN

## Awareness of bispectral index monitoring system among the critical care nursing personnel in a tertiary care hospital of India

[Shikha Thakur](#), [Tarandeep Kaur](#), [Sukhpal Kaur](#), [Hemant Bhagat](#),<sup>1</sup> [Sandhya Narayan](#)

## Is the bispectral index appropriate for monitoring the sedation level of mechanically ventilated surgical ICU patients?

Bispectral index versus COMFORT score to determine the level of sedation in paediatric intensive care unit patients: a prospective study

Andreas E Triltsch<sup>1</sup>, Grit Nestmann<sup>1</sup>, Helmut Orawa<sup>1</sup>, Maryam Moshirzadeh<sup>1</sup>, Michael Sander<sup>1</sup>, Joachim Große<sup>1</sup>, Arka Genähr<sup>1</sup>, Wolfgang Konertz<sup>2</sup> and Claudia D Spies<sup>3,\*</sup>

## Bispectral Index: Is It Ready for Prime Time in the ICU?

David W Crippen, MD, FCCM [Faculty and Disclosures](#)

CME Released: 03/24/2004 ; Valid for credit through 03/24/2005

# Improved Emergence, Recovery and Discharge

- ❖ Optimal anesthetic administration improves patient outcomes and satisfaction and may facilitate faster recovery and discharge by minimizing side effects and postoperative complications.
- ❖ Studies have shown that patients whose anesthetic dosing was guided by BIS monitoring required less propofol and experienced:
  - ❖ Faster extubation (**golden period**)
  - ❖ Faster emergence
  - ❖ Better orientation at the Post Anesthesia Care Unit (PACU)
  - ❖ Faster discharge

# In the END...

- BIS monitoring has multiple advantages over other forms of monitoring patients in the recovery from anesthesia

This is my BIS after 12 hours night shift



# CALL FOR ABSTRACTS is now OPEN

The banner features several logos and illustrations. On the left is the WFCCN logo (World Federation of Critical Care Nurses) with the website www.wfccc.org. Next to it is the ACCCN logo (Australian College of Critical Care Nurses). The central text reads 'WFCCN 12th Congress' followed by 'CLINICAL CRITICAL CARE' and the tagline 'Communication, Collaboration, Culture - an International Conference'. To the right, there is an illustration of a kangaroo holding a small Australian flag and a koala wearing a pink shirt. A speech bubble above the koala says 'G'DAY! FROM DOWN UNDER'. Further right, a blue circle contains the dates '21 - 23 APRIL 2016' and the location 'BRISBANE QUEENSLAND AUSTRALIA'. On the far right is the ICE logo (International Critical Care Education) set against a background of overlapping yellow, blue, and grey circles.

...see you in Brisbane, Australia



THANK YOU FOR  
YOUR  
ATTENTION!!!



