Pass The Un-passable

DABNM CRASH COURSE

http://intraoperativeneuromonitoring.com
What this course is **NOT**...

- A review of the literature
- Resource list
- Canned answers
- Prewritten case notes
- The questions I was asked
1. Case Selection

Just a piece of advice
Give Yourself More Than A Punchers Chance

What You Know

Your Choice

Papers To Defend Your Claims
<table>
<thead>
<tr>
<th>I. Spine</th>
<th>III. Intracranial</th>
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<tbody>
<tr>
<td>A Scoliosis</td>
<td>A CP Angle/Post Fossa Tumor</td>
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<tr>
<td>B Thoracic Stabilization</td>
<td>B Large Skull Base Tumor</td>
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<tr>
<td>C Lumbosacral Pedicle Screw Fusion</td>
<td>C Pituitary Tumor</td>
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<tr>
<td>D Cervical Fusion</td>
<td>D Intracranial Lesion/Tumor</td>
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<tr>
<td>E Spinal Cord Tumor</td>
<td>E Decompression of a Cranial Nerve</td>
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<td>F Tethered Cord</td>
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<tr>
<th>II. Vascular</th>
<th>IV. Intraoperative Diagnostics</th>
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<tr>
<td>A Carotid Endarterectomy</td>
<td>Brachial</td>
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<tr>
<td>B Intracranial Aneurysm</td>
<td>A Plexus/Peripheral Nerve</td>
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<tr>
<td>C Thoraco-Abdominal Aortic Aneurysm</td>
<td>B Epilepsy Electrocorticography</td>
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<td>C Functional Neurosurgery</td>
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Case Submission

Don’t Fail The Test
Before You Even Walk Through The Door!
One way: You would be very smart to hand in a bulletproof case. Force them to come up with “what if” scenarios.

Another way: If there are weaknesses, find them and rehearse your defense.
Which Case To Use?
Which Change To Use?
Do A Complete WHY Check...

Why did you choose that?

Rep Rate = 2.79

Why might you change it?

Why not something else?

What is the single worst answer you can give?

- Intro
- Snapshots for every update of live traces (10-15 min, more if there’s a problem)
- Snapshot for every triggered response
- Waterfall and/or summary
- Numeric Values/Tables (use markers)
- Comments on traces
- Remote oversight transcripts
- Case note

This is your opportunity to show them the high level of monitoring you’re performing.
Show diligent note taking that proves you had all appropriate conversations, can prove awareness of surgical procedure, anesthetic levels and your modalities.

- Document an appropriate history, review of pertinent diagnostic findings, patient complaints, etc.
- Make note on assessment of BSL and closing data
- Notes should be every 10-15 minutes
- Notes should be every time a conversation relative to the case happens
Notes should be every time the surgery moves to the next stage till the end (gross neuro exam)
Notes should be every time there’s something noteworthy from a monitoring standpoint (a change, change in parameters, bad impedance, etc.)
Every 30 minutes do an anesthetic update
Every 30 minutes do a neuromonitoring update on all modalities watched that past 30 minutes
Make mapping comments as they happen along with triggered events.
Make a comment at the end of mapping.
Type of Surgery: Cauda Equina Surgery

Type of monitoring: Intraoperative monitoring using upper and lower extremity somatosensory evoked potentials (SSEP), motor evoked potentials (MEP), H-reflex, bulbocavernous reflex (BCR), free-run electromyography (free-run EMG), triggered electromyography (TEMG) and train-of-four (TOF).

Setup: The neuromonitoring equipment met all regulatory biomechanical safety inspections. Placement of all monitoring devices was performed by a board-certified anesthesiologist. SSEP monitoring was performed using needle electrodes placed along the posterior tibial nerve at the popliteal fossa. A monophasic, rectangular wave was delivered by a constant current stimulator. CMAPs were recorded using needle electrodes placed from the soleus to the tibia. For MEP, a monophasic, rectangular wave was delivered by a constant current stimulator. MEPs were recorded using surface electrodes placed from the shoulder to the wrist. For BCR, a submaximal stimulating intensity was chosen to produce a reasonably reliable CMAP-BCR. BCR were reproducible in both left and right external anal sphincters. For H-reflex, a submaximal stimulating intensity was chosen to produce a maximal reflex response before or at the start of a muscle response. H-reflexes were reliable in both lower extremities.

Mapping Summary:

The alarm criteria for significant changes in SSEP, MEP, and BCR were set at a greater than 50% reduction in amplitude. These changes would be reported throughout the surgical procedure in bilateral upper and lower extremities.

Monitoring Summary:

The alarm criteria for significant changes in MEP or the presence of absence of the CMAP-BCR were also reported. There were no significant changes in the H-reflexes following the positioning of the patient or throughout the surgical procedure in bilateral upper and lower extremities.

The alarm criteria for significant changes in BCR was the presence or absence of the CMAP-BCR. However, any persistent change in amplitude would also be reported. There were no significant changes in the BCR following the positioning of the patient or throughout the surgical procedure in all extremities.
3. Collecting Study Material

Experience. Textbooks. Conferences. Articles.
Disclaimer: These statements are based on information presented at scientific meetings, published in the current scientific and clinical literature, and presented in previously published guidelines and position statements of various clinical societies. These documents may not include all possible methodologies and interpretive criteria, nor are they intended to exclude any new alternatives. ASNM provides general information and education materials as a service in promotion of its nonprofit and tax-exempt status.
How To Find Study Material
Starting at the beginning
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Google Books for free content and leads to more articles or books
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Google Images for free content and leads to more articles or books
How To Find Study Material

Conference lectures are a great resource for review of the literature, as well as what’s new in the field.
How To Find Study Material

Go back to Google with all your references. You can use the filetype: operator in Google Search to limit results to a specific file type.

▸ **Filetype:pdf**
▸ Filetype:ppt or Filetype:pptx
▸ Filetype:doc or Filetype:docx
▸ Filetype:txt
▸ Use these with general terms (“motor evoked potentials”)
▸ Use these with authors (JR Hartman)
▸ Use these with article titles (Intraoperative motor evoked potential monitoring – A position statement by the American Society of Neurophysiological Monitoring)
How To Find Articles!
Use Youtube.com to learn about the surgery
Use Google Books to learn about the surgery
4. Answering Questions

Experience. Textbooks. Conferences.
How To Answer Questions

- Merlin Method – predict what question they are going to ask by knowing what is spoke about in the literature. Then ask open ended questions and curve ball questions.
- Give the right answer + acknowledge weakness to your answer + dispute those weaknesses + justify why your answer is right = the right "enough" answer.
- Avoid their traps. They’re there on purpose.
- Practice as if you were shooting your own Joe v Joe video.

http://intraoperativeneuromonitoring.com/neuromonitoring-study-guides/
Take It Or Leave It.
Build Your Library…

- Collect as many articles as you can.
- Read through those articles with a highlighter and pen.
- Write your own questions off the information given in the article.
- Use the content of the article for the answer. Copy and past that answer, and then rewrite it a little to be a little more conversational or best answer the question you came up with. This will make it easier to remember.
- Keep it all in a master word doc that is broken up into reasonable sections.
- Use cntrl+f to compare responses. Find differences, similarities and trends.
Build Your Library (cont)...

- Rearrange your questions as if they fell into a sequence of questions.
- Find images to help put in long term memory.
- In the last section, rearrange the order.
- Usually you’re giving an answer and telling them (author, year). Make a section that starts with (author, year) and you talk about what was presented in that paper and other high points.
Find good review of the literature articles.
Make sure you know the paper everyone references over the obscure article from the 60’s
For articles that are images, you are not able to copy and paste the text. If you believe it is taking too long to type out, use a service like http://www.convert-jpg-to-pdf.net/ to convert the image to pdf. Big time saver.
Rehearse, Rehearse, Rehearse

http://www.audacityteam.org/
Know Your Role!

Find all articles offered by associations. These should include recommendations for monitoring, scope of practice, code of ethics, position statements, etc.

Understand the role of D.ABNM and how you would handle situations.

Thinking has to be that of a manager/leader of a group. You need to work through scenarios where you are needed to give expertise.

“To Become, Act As If…”
Phone a friend...

- Find someone that you can ask for help.
- See what they think about your answers to questions with no real “right” answer.
- Have them grill you to no end.
- Have them tear your submitted case to shreds.
- See what they’ve got for study material.
- Be on the look out for others preparing for the exam. Start a study group (people in your company, start a post on the forum, look to see who’s asking questions)
Be A Creap...

▸ Find the names of the examiners.

▸ Looks for any publications they have.

▸ See if you can find any lectures given at conferences.

▸ Look to find them in online conversations. Blog comments, Linkedin groups, forum post, etc.

▸ Utilize “confirmation bias”
Good Luck!

CREDITS

Special thanks to all the people who made and released these awesome resources for free:

[Sentient Logo]
Intraoperative Neuromonitoring & Neurodiagnostics