# NeuroTrace Study Guide

**Domain:** Domain IV – Professional Practice, Safety & Ethics
**Section:** Patient Safety & Professional Standards
**Style:** Policy-driven, scenario-based, exam-oriented

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## 1. Core Principles (Must Know)

### Patient Safety Overrides Diagnostic Yield

- **Patient safety overrides diagnostic yield**
- Safety is the highest priority
- Never compromise safety for data collection
- Stop the study if safety is compromised

### EEG Involves Electrical Equipment → Safety Protocols Mandatory

- **EEG involves electrical equipment → safety protocols mandatory**
- Electrical equipment poses risks
- Safety protocols must be followed
- Equipment must be properly maintained

### Technologists Must Act Within Scope of Practice

- **Technologists must act within scope of practice**
- Know your role and limitations
- Do not diagnose or provide medical advice
- Work within your training and certification

### Key Principle

- **Do no harm — stop the study if safety is compromised**
- First, do no harm
- Safety comes first
- When in doubt, stop and seek help

### Practical Application

- Always prioritize patient safety
- Follow safety protocols
- Know your scope of practice
- Act ethically and professionally

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## 2. Electrical Safety

### EEG Machines Are Grounded and Isolated

- **EEG machines are grounded and isolated**
- Proper grounding prevents electrical shock
- Isolation protects patient from electrical hazards
- Equipment must meet safety standards

### Inspect

#### Cables

- **Inspect cables:** Check for damage, fraying, exposed wires
- **Before each use:** Visual inspection required
- **Replace if damaged:** Never use damaged cables
- **Document issues:** Report equipment problems

#### Electrodes

- **Inspect electrodes:** Check for damage, corrosion
- **Before each use:** Visual inspection required
- **Replace if damaged:** Never use damaged electrodes
- **Clean properly:** Follow disinfection protocols

#### Power Cords

- **Inspect power cords:** Check for damage, fraying
- **Before each use:** Visual inspection required
- **Replace if damaged:** Never use damaged power cords
- **Proper connection:** Ensure secure connection

### Never Use Damaged Equipment

- **Never use damaged equipment**
- Damaged equipment is unsafe
- Report equipment problems immediately
- Use only properly maintained equipment

### ABRET Emphasis

- **Electrical safety checks must be performed before recording**
- Pre-study safety checks are mandatory
- Document safety inspections
- Follow facility safety protocols

### Best Practice

- Perform safety checks before each study
- Inspect all equipment visually
- Test equipment functionality
- Document safety inspections

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## 3. Infection Control

### Hand Hygiene Before and After Patient Contact

- **Hand hygiene before and after patient contact**
- Wash hands or use hand sanitizer
- Before: Protect patient from contamination
- After: Protect yourself and others

### Proper Electrode Cleaning/Disposal

- **Proper electrode cleaning/disposal**
- Follow manufacturer instructions
- Use appropriate disinfectants
- Dispose of single-use items properly

#### Disinfection Protocol

- **Clean:** Remove visible debris

- **Disinfect:** Use appropriate disinfectant
- **Rinse:** Remove disinfectant residue
- **Dry:** Allow to air dry
- **Store:** Store in clean, dry location

### Follow Universal Precautions

- **Follow universal precautions**
- Treat all patients as potentially infectious
- Use personal protective equipment (PPE)
- Follow standard precautions

#### Standard Precautions

- **Hand hygiene:** Before and after contact
- **PPE:** Gloves, gowns, masks as needed
- **Safe injection practices:** Prevent needlestick injuries
- **Environmental cleaning:** Clean and disinfect surfaces

### ABRET Trap

- **Reusing improperly disinfected electrodes is unsafe**
- Proper disinfection is mandatory
- Never reuse electrodes without proper cleaning
- Follow facility infection control policies

### Best Practice

- Follow hand hygiene protocols
- Use proper disinfection procedures
- Follow universal precautions
- Document infection control measures

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## 4. Contraindications & Precautions

### Hyperventilation

#### Avoid in Severe Cardiac or Respiratory Disease

- **Avoid in severe cardiac or respiratory disease**
- Can worsen cardiac conditions
- Can worsen respiratory conditions
- May cause complications

#### Contraindications

- **Sickle cell disease:** Risk of crisis
- **Severe cardiac disease:** Risk of complications
- **Severe respiratory disease:** Risk of respiratory distress
- **Recent stroke:** Risk of complications

#### Precautions

- **Monitor patient:** Watch for distress
- **Stop if needed:** Stop if patient becomes uncomfortable
- **Duration:** Limit duration appropriately
- **Document:** Document any adverse effects

### Photic Stimulation

#### Stop if Patient Reports Discomfort or Seizure Occurs

- **Stop if patient reports discomfort or seizure occurs**
- Patient safety is priority
- Stop immediately if seizure occurs
- Document the event

#### Precautions

- **Known photosensitive epilepsy:** Use with caution
- **Patient discomfort:** Stop if patient reports discomfort
- **Seizure occurrence:** Stop immediately
- **Documentation:** Document all responses

### Sleep Deprivation

#### Requires Informed Consent

- **Requires informed consent**
- Patient must understand risks
- Patient must consent to procedure
- Document consent appropriately

#### Precautions

- **Medical clearance:** May require medical clearance
- **Patient safety:** Ensure patient safety
- **Transportation:** Arrange safe transportation
- **Follow-up:** Ensure appropriate follow-up

### Best Practice

- Know contraindications for each procedure
- Obtain informed consent when needed
- Monitor patients during procedures
- Stop procedures if safety is compromised

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## 5. Emergency Response

### Recognize Seizure Onset

- **Recognize seizure onset**
- Know signs of seizure onset
- Act quickly and appropriately
- Protect patient from injury

#### Signs of Seizure

- **Tonic activity:** Muscle stiffening
- **Clonic activity:** Muscle jerking
- **Loss of consciousness:** Unresponsiveness
- **Automatisms:** Repetitive movements

### Protect Patient from Injury

- **Protect patient from injury**
- Remove harmful objects

- Protect head from injury
- Do not restrain patient

#### Safety Measures

- **Remove objects:** Remove nearby objects
- **Protect head:** Cushion head if possible
- **Position:** Position patient safely
- **Monitor:** Monitor patient continuously

### Do NOT Restrain

- **Do NOT restrain**
- Restraint can cause injury
- Allow seizure to run its course
- Protect patient without restraint

### Call for Medical Assistance if Needed

- **Call for medical assistance if needed**
- Know when to call for help
- Call for prolonged seizures
- Call for status epilepticus

#### When to Call

- **Prolonged seizure:** >5 minutes
- **Status epilepticus:** Continuous seizures
- **Injury:** Patient injury occurs
- **Respiratory distress:** Breathing problems

### ABRET Emphasis

- **EEG recording should continue during a seizure if safe**
- Continue recording if safe
- Document seizure activity
- Do not compromise patient safety

### Best Practice

- Know emergency response protocols
- Act quickly and appropriately
- Protect patient from injury
- Call for help when needed

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## 6. Professional Conduct & Ethics

### Maintain Patient Confidentiality

- **Maintain patient confidentiality**
- HIPAA compliance is mandatory
- Protect patient information
- Do not discuss cases inappropriately

#### Confidentiality Principles

- **HIPAA compliance:** Follow HIPAA regulations
- **Need-to-know:** Share information only when necessary
- **Secure storage:** Store information securely

- **Proper disposal:** Dispose of information properly

### Accurate, Unbiased Reporting

- **Accurate, unbiased reporting**
- Report findings accurately
- Do not exaggerate or minimize findings
- Maintain objectivity

#### Reporting Principles

- **Accuracy:** Report findings accurately
- **Objectivity:** Maintain objectivity
- **Completeness:** Include all relevant information
- **Clarity:** Write clearly and concisely

### Do Not Diagnose or Provide Medical Advice

- **Do not diagnose or provide medical advice**
- Technologists do not diagnose
- Do not provide medical advice
- Stay within scope of practice

#### Scope of Practice

- **Technologist role:** Record and report findings
- **Physician role:** Interpret and diagnose
- **Boundaries:** Know and respect boundaries
- **Refer questions:** Refer medical questions to physician

### Best Practice

- Maintain patient confidentiality
- Report findings accurately
- Stay within scope of practice
- Act ethically and professionally

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## 7. Common ABRET Exam Traps

### Trap 1: Continuing EEG During Unsafe Conditions

- **Reality:** Safety must come first
- **Trap:** May continue recording during unsafe conditions
- **Solution:** Stop recording if safety is compromised
- **ABRET focus:** Safety takes precedence

### Trap 2: Ignoring Patient Distress

- **Reality:** Patient distress must be addressed
- **Trap:** May ignore patient distress to continue recording
- **Solution:** Stop procedure if patient is distressed
- **ABRET focus:** Patient safety is priority

### Trap 3: Violating Confidentiality

- **Reality:** Confidentiality is mandatory
- **Trap:** May discuss cases inappropriately
- **Solution:** Maintain confidentiality at all times

- **ABRET focus:** HIPAA compliance

### Trap 4: Acting Beyond Scope of Practice

- **Reality:** Technologists have defined scope
- **Trap:** May diagnose or provide medical advice
- **Solution:** Stay within scope of practice
- **ABRET focus:** Professional boundaries

### Trap 5: Not Following Safety Protocols

- **Reality:** Safety protocols are mandatory
- **Trap:** May skip safety checks
- **Solution:** Always follow safety protocols
- **ABRET focus:** Safety compliance

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## 8. Case-Based Example

### Scenario

**Clinical Setting:** Routine EEG with photic stimulation
**Event:** Patient develops tonic activity during photic stimulation
**Response:** Technologist stops stimulation immediately
**Outcome:** Patient recovers, event documented

### Correct Action

- **Stop stimulation:** Stop photic stimulation immediately
- **Ensure patient safety:** Protect patient from injury
- **Document event:** Document the event accurately
- **Notify physician:** Notify physician of the event

### Teaching Point

- **Safety response precedes data acquisition**
- Patient safety is always priority
- Stop procedures if safety is compromised
- Document all events accurately

### ABRET Application

- Given seizure during procedure → stop procedure immediately
- Given patient distress → address patient needs first
- Given safety concern → prioritize safety over data
- Must know when to stop procedures

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## 9. Exam Readiness Checklist

Use this checklist to verify your understanding:

- [ ] Can apply safety principles (electrical, patient, infection control)
- [ ] Can identify contraindications (HV, photic, sleep deprivation)
- [ ] Can respond to emergencies (seizure, distress, equipment failure)
- [ ] Can maintain ethical standards (confidentiality, scope of practice)
- [ ] Understand that patient safety takes precedence

- [ ] Know that electrical safety checks are mandatory
- [ ] Recognize that proper disinfection is required
- [ ] Know when to stop procedures
- [ ] Understand emergency response protocols
- [ ] Can identify unsafe practices
- [ ] Know scope of practice boundaries
- [ ] Understand HIPAA compliance requirements

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## 10. Internal Cross-Links

### Workflow

- **Recording Procedures:** How to perform procedures safely
- **Electrodes & Impedance:** Electrical safety considerations
- **Activation Procedures:** Safety considerations for activation

### Patterns

- **Seizure Activity:** Recognizing and responding to seizures
- **Activation Procedures:** Safety during activation procedures

### Cases

- **Safety-related EEG scenarios:** Cases involving safety issues
- **Emergency response cases:** Cases requiring emergency response

### Quizzes

- **Patient safety MCQs:** Questions on patient safety
- **Electrical safety questions:** Questions on electrical safety
- **Ethics questions:** Questions on professional ethics

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## Study Tips

1. **Memorize safety principles:** Patient safety first, electrical safety mandatory
2. **Learn contraindications:** HV, photic, sleep deprivation contraindications
3. **Know emergency response:** Seizure recognition and response
4. **Understand scope of practice:** Technologist role and limitations
5. **Remember the principle:** Do no harm, safety takes precedence
6. **Know the traps:** Continuing during unsafe conditions, ignoring distress
7. **ABRET focus:** Expect questions on safety, contraindications, and emergency response

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**End of Study Guide**

*For additional practice, complete quiz questions tagged: patient-safety, electrical-safety, infection-control, ethics*