



Operating Under the Authority of the American Osteopathic Association

## ORAL EXAMINATION TOPICS LIST

The following is list of topics to prepare for the Oral Examination. This list is extensive but in no way exclusive. The information can be found in most textbooks and updated information from publications such as Anesthesiology Clinics, Current Reviews in Clinical Anesthesia, Current Opinion in Anesthesiology, and others.

### PATIENT EVALUATION

- ◆ Preoperative (visit, evaluation, premedication, risk assessment)
- ◆ Postoperative (visit, evaluation, complications)

### REGIONAL ANESTHESIA

- ◆ Nerve blocks (head and neck, upper extremity, lower extremity)
- ◆ Spinal anesthesia
- ◆ Epidural/caudal anesthesia
- ◆ Blocks of sympathetic nervous system (stellate ganglion, celiac plexus, lumbar sympathetic)
- ◆ Intravenous regional anesthesia
- ◆ Complications of regional nerve blocks
- ◆ Ultrasound-guided blocks

### PAIN THERAPY

- ◆ Common pain syndromes (reflex sympathetic dystrophy, causalgia, cancer pain, low back pain, cervical pain, chronic pain, neuropathic pain, phantom-limb pain)
- ◆ Postoperative pain
- ◆ Therapeutic modalities (TENS, cryoanalgesia, analgesics, regional techniques, PCA, neuraxial opioids, surgical role in pain relief, acupuncture, hypnosis)

### CARDIAC ANESTHESIA

- ◆ Physical diagnosis
- ◆ Diagnostic/therapeutic procedures (radiology, laboratory tests, echocardiography, EKG, angioplasty, cardioversion, pacemakers, pericardiocentesis)
- ◆ Diseases (coronary artery disease, valvular heart disease, congenital heart disease, dysrhythmias, heart failure, cardiomyopathy, endocardial disease, myocardial disease, neoplasms, infections)

- ◆ Anesthetic considerations (effects of anesthesia on cardiac function, noncardiac surgery in patient with cardiac disease, monitoring [EKG, arterial pressure, central lines, PAC, cardiac output, TEE])
- ◆ Cardiac surgery (preoperative evaluation, intraoperative considerations, anesthetic techniques, postoperative complications)
- ◆ Extracorporeal circulation (equipment, indications/contraindications, complications, myocardial preservation, hemostasis, ECMO)
- ◆ Heart and lung transplantation
- ◆ Thoracic aortic aneurysms
- ◆ Cardiac trauma

### VASCULAR ANESTHESIA

- ◆ Physical diagnosis
- ◆ Diagnostic/therapeutic procedures (laboratory tests, radiology, plethysmography)
- ◆ Diseases (atherosclerosis, peripheral vascular disease, hypertension, diseases of peripheral veins, carotid disease, aortic disease, vascular aneurysms, orthostatic hypotension, congenital deformities, neoplasms, infections, collagen vascular diseases)
- ◆ Anesthetic considerations (cardiac risk in vascular patients, peripheral vascular surgery, carotid surgery, aortic surgery, vascular angioplasty, postoperative care)

### THORACIC ANESTHESIA

- ◆ Physical diagnosis
- ◆ Diagnostic/therapeutic procedures (pulmonary function tests, laboratory tests, radiology, chest tubes, pleural tap, lung biopsy, bronchoscopy)
- ◆ Diseases (COPD, asthma, bronchiectasis, cystic fibrosis, drowning, pulmonary emboli, pulmonary infarction, kyphoscoliosis, tuberculosis, ate-

lectasis, pulmonary edema [noncardiogenic], Pneumothorax, bronchospasm, apnea, pulmonary hypertension and cor pulmonale, smoking, interstitial lung disease, infectious lung disease, neoplasms, disease of the pleura, diseases of the mediastinum, diseases of the diaphragm, respiratory failure, ARDS, congenital lung disease, trauma)

- ◆ Anesthetic considerations (anesthesia and respiratory function, bronchoscopy, mediastinoscopy, thoracoscopy, one-lung anesthesia, tracheal resection, massive pulmonary hemorrhage, bronchopulmonary lavage, superior vena cava syndrome, thoracic trauma, pulmonary resection, postoperative pulmonary complications)

#### NEUROSURGICAL ANESTHESIA

- ◆ Physical diagnosis
- ◆ Diagnostic/therapeutic procedures (spinal tap, ventriculostomy, stereotactic biopsy, neuroradiology)
- ◆ Diseases (cerebral edema, hydrocephalus, coma, seizure disorders, cerebrovascular disease, infectious disease, tumors, metabolic derangements, genetic diseases, neurological injury, spinal cord diseases, demyelinating diseases, neuropathies, cerebral palsy, autonomic derangements, headaches)
- ◆ Anesthetic considerations (posterior cranial fossa surgery, cerebrovascular surgery, venous air embolism and sitting position, hypophysectomy, spinal cord surgery, peripheral nerve surgery, deliberate hypotension, cerebral protection, surgery for seizures, craniotomy, head trauma, intensive care in neurosurgery, chronic supportive care, brain death, electroconvulsive therapy [ECT])

#### OBSTETRICS AND ANESTHESIA

- ◆ Physiology of pregnancy
- ◆ Physical diagnosis
- ◆ Diagnostic/therapeutic procedures (laboratory, amniocentesis, radiology)
- ◆ Anesthetic considerations (monitoring in obstetrics, obstetric pharmacology, anesthetics and uterine blood flow/uterine activity)
- ◆ Vaginal delivery (natural childbirth, systemic medications, local and regional anesthesia, spinal/epidural opioids, general anesthesia)
- ◆ Cesarean section (regional anesthesia, general anesthesia)
- ◆ Complicated obstetrics (preterm labor, preeclampsia/eclampsia, abnormal presentations and

multiple births, periparturient hemorrhage, amniotic fluid embolism, meconium staining)

- ◆ Parturient with coexisting disease (asthma, cardiac disease, bleeding disorders, diabetes, morbid obesity, immune disorders, neuromuscular disorders, neurosurgical disorders, nonobstetric surgical diseases)
- ◆ Postpartum sterilization surgery
- ◆ Morbidity and mortality in obstetric anesthesia
- ◆ Fetus and newborn (perinatal pharmacology, fetal evaluation, fetal asphyxia, diseases of the fetus, anesthesia for fetal surgery, newborn resuscitation, meconium aspiration)

#### GYNECOLOGY AND ANESTHESIA

- ◆ Physical diagnosis
- ◆ Diseases (uterus, ovaries and fallopian tubes, vagina, infertility)
- ◆ Anesthetic considerations (dilatation and curettage, laparoscopy, hysterectomy, GYN-oncology, tubal ligation, contraception and anesthesia, anesthesia for infertility surgery)

#### ANESTHESIA FOR UROGENITAL SURGERY

- Physical diagnosis
- Diagnostic/therapeutic procedures
- Urinary tract diseases (acute/chronic renal failure, glomerular diseases, infections, obstructive uropathy, urinary tract tumors, prostatic tumors, hereditary malformations, renal manifestations of systemic disease, trauma, kidney stones)
- Male genitalia diseases (infertility, hereditary malformations, infections, tumors)
- Anesthetic considerations (modification in renal insufficiency, renal effects of anesthesia, general anesthesia, regional anesthesia, TURP, cystoscopy, kidney transplantation, lithotripsy, bladder surgery)

#### GASTROENTEROLOGY AND ANESTHESIA

- Physical diagnosis
- Diagnostic/therapeutic procedures (laboratory, radiology, endoscopy, peritoneal lavage, ERCP, live biopsy)
- Diseases (disorders of motility, peptic ulcer, GI bleeding, malabsorption, diseases of pancreas, inflammatory diseases, vascular diseases, diseases of peritoneum/mesentery/omentum, neoplastic diseases, diseases of the gallbladder and bile ducts, diseases of the liver, diseases of the esophagus)

- Anesthetic considerations (Full stomach/pre-operative NPO, small bowel obstruction, portal hypertension, hepatic surgery, liver transplantation, surgery of the gallbladder and bile ducts, hepatic effects of anesthetics, abdominal trauma, major abdominal surgery)

#### ENDOCRINE AND ANESTHESIA

- Physical diagnosis
- Diagnostic/therapeutic procedures
- Diseases (pineal, thyroid, adrenal, gonads, parathyroid, pituitary, pancreas, hypothalamus, multiple endocrine adenomatosis)
- Anesthetic considerations (stress response to surgery, adrenal cortex malfunction, pheochromocytoma surgery, carcinoid surgery, thyroid surgery, parathyroid surgery, pituitary surgery, diabetes mellitus)

#### HEMATOLOGY AND ANESTHESIA

- Physical diagnosis
- Diagnostic/therapeutic procedures (laboratory, marrow biopsy)
- Diseases (anemias, hemolytic disorders, polycythemia, white blood cell diseases, lymphoreticular neoplasms, hemorrhagic disorders [primary, coagulation defects], eosinophilic syndromes, plasma cell dyscrasias, disorders of the spleen and reticuloendothelial system)
- Anesthetic considerations (Blood banking and component therapy, transfusions [reactions and complications, autotransfusions, Jehovah's Witness, plasma expanders], preoperative requirements, anesthesia for bone marrow transplantation, hematologic effects of anesthesia)

#### ONCOLOGY AND ANESTHESIA

- Principles of neoplasia and tumor markers
- Cancer and its medical manifestations
- Endocrine syndromes associated with cancer
- Cancer therapy (irradiation, cytotoxic therapy, immunostimulatory procedures, supportive care)
- Infection and the cancer patient
- Psychological aspects of cancer therapy

#### ANESTHESIA FOR OPHTHALMOLOGY

- Physical diagnosis
- Diagnostic/therapeutic procedures
- Diseases (muscles, soft tissue, glaucoma, cornea and lens, retina, trauma, ocular manifestations of systemic disease)

- Anesthetic considerations (topical/infiltration and nerve blocks, general anesthesia, surgery on the retina and vitreous body, glaucoma surgery, cataract extraction, laser therapy, strabismus, tumors, open eye)

#### ANESTHESIA FOR OTOLARYNGOLOGY AND MAXILLOFACIAL SURGERY

- Physical diagnosis
- Diagnostic/therapeutic procedures
- Diseases (Ear, nose/paranasal sinuses, throat, larynx, maxillofacial structures)
- Anesthetic considerations (general anesthesia, regional anesthesia, epinephrine and ENT anesthesia, surgery on nose/sinuses/mouth, T&A, mastoidectomy, tympanoplasty, laryngoscopy/bronchoscopy, laser therapy, tracheostomy, tumors of pharynx and larynx, radical neck surgery)
- Oral and maxillofacial surgery (general considerations, general anesthesia, regional anesthesia)

#### ANESTHESIA FOR ORTHOPEDIC SURGERY AND THE MUSCULOSKELETAL SYSTEM

- Physical diagnosis
- Diagnostic/therapeutic procedures (joint aspiration, muscle biopsy)
- Diseases (fractures and injuries, demineralization, tumors, bone infection, congenital deformities, degenerative diseases, arthritis [rheumatoid, degenerative], ankylosing spondylitis, joint infection, injury, muscular dystrophy, myasthenia gravis, myotonias, myasthenic syndrome, atypical pseudocholinesterase)
- Anesthetic considerations (monitoring [SSEP], local and regional anesthesia, general anesthesia, correction of scoliosis, joint replacement, spinal surgery, the patient with multiple injuries, tourniquets, the patient with neuromuscular disorders, the patient with arthritis, embolism in orthopedic surgery [thromboembolism, fat embolism], physical therapy and rehabilitation, positioning)

#### GERIATRIC ANESTHESIA

- Psychosocial aspects
- Pharmacology (alterations in drug disposition, drug interactions)
- Altered physiology
- Anesthetic considerations (premedication, anesthetics and the heart, the hypertensive elderly, regional vs. general in the elderly, fluid management, anesthetic risk, critical care issues)

## ANESTHESIA FOR PLASTIC SURGERY

- General considerations
- Psychosocial aspects
- Anesthetic considerations (analgesia and sedation, local and regional anesthesia, epinephrine use, craniofacial surgery, facial trauma, microvascular surgery [bone, cartilage, dermis, fat, fascia, nerve, skeletal muscle, tendon], liposuction, laser therapy, breast augmentation)

## PEDIATRIC ANESTHESIA

- Physiology
- Physical diagnosis
- Pharmacology
- Development and growth
- Metabolism and nutrition
- Temperature regulation
- Monitoring (apnea, transcutaneous O<sub>2</sub>, Doppler)
- Diagnostic/therapeutic procedures (spinal tap, angiography, pacemakers, echocardiography, radiology, cardiac catheterization)
- Diseases (skin, heart, ENT, eye, respiratory tract, gastrointestinal tract, blood, urogenital system, bone and joints, neuromuscular disorders, endocrine and metabolic disorders, neoplastic diseases and reticuloendotheliosis, infectious, allergic, collagen vascular, nervous system, psychiatric disorders, poisons and toxins)
- Anesthetic considerations (preoperative evaluation, psychological preparation, anesthesia equipment, premedication, regional anesthesia, general anesthesia [inhalational, intravenous], muscle relaxants, airway, PACU)
- Pediatric anesthesia for (cardiovascular surgery, neurosurgery, ophthalmology, ENT and dental surgery, orthopedic surgery, thoracic surgery, plastic surgery, genitourinary surgery, general surgery, trauma, outpatient surgery, diagnostic and therapeutic procedures, surgical emergencies)
- Pediatric critical care (intensive care, emergency medicine, respiratory care)
- Newborns and premature infants (physiology, assessment and general care, diagnostic and therapeutic procedures, diseases of newborn and premature infants, neonatal intensive care, resuscitation of the newborn)
- Anesthetic considerations for the newborn and premature infant (preoperative evaluation, equipment and monitoring, regional anesthesia, general anesthesia, surgical emergencies, retro-

lental fibroplasia, newborns of high risk mothers)

## OUTPATIENT ANESTHESIA

- General considerations
- Selection criteria
- Premedication
- Office-based anesthesia
- Sedation during local and regional anesthesia
- Regional anesthesia
- General anesthesia
- Complications
- Discharge criteria

## POSTANESTHESIA CARE UNIT (PACU)

- General considerations
- Emergency diagnosis and treatment
- Postoperative ventilator disorders
- Circulatory disorders in the PACU
- Fluid management
- Special considerations (the cardiac patient, the neurosurgical patient)

## NUTRITION AND ANESTHESIA

- Nutritional assessment
- TPN (requirements, rational planning, glucose homeostasis)
- Diseases (protein-calorie malnutrition, vitamin deficiencies, starvation, anorexia nervosa)
- Anesthetic considerations (preoperative starvation, nutrition and infection, nutrition and trauma, effects of TPN on drug metabolism, perioperative nutrition, intraoperative management of TPN, perioperative complications of TPN)

## METABOLISM AND ANESTHESIA

- Physical diagnosis
- Diagnostic/therapeutic procedures (muscle biopsy)
- Diseases (diseases of carbohydrate metabolism, disorders of lipid metabolism, inborn errors of amino acid metabolism, disorders of purine and pyrimidine metabolism, porphyria, Wilson's disease, hemochromatosis, temperature regulation disorders [shivering])
- Anesthetic considerations (malignant hyperthermia, obesity, porphyria, lipid disorders, carbohydrate disorders, amino acid disorders [gout], hemochromatosis, perioperative hypothermia)

## CRITICAL CARE

- Monitoring in critical care
- Diseases of the airway (congenital deformities, trauma, neoplasms)
- Anesthetic considerations of the airway (obstruction, laryngospasm, laryngoscopy, artificial airways, intubation [orotracheal, nasotracheal, fiberoptic, emergency], cricothyroidotomy, tracheostomy)
- Trauma patients
- Burn patients (evaluation, resuscitation, anesthetic considerations, long-term care)
- Shock states (pathophysiology, therapy)
- Ventilatory management (bronchial hygiene therapy, oxygen therapy, ventilator modes [CMV, AMV, IMV], PEEP, CPAP, high-frequency jet ventilation, ABGs, carbon dioxide [hypocarbia, hypercarbia, capnography])
- Infection in critically ill patients
- Cardiopulmonary resuscitation

## OPERATING ROOM

- Safety standards
- Quality assurance
- Monitoring standards

## HAZARDS TO ANESTHESIOLOGISTS & OR PERSONNEL

- Infections (hepatitis, AIDS, other)
- Trace anesthetics
- Irradiation
- Substance abuse/addiction
- Work-related injuries
- Stress-related injuries

## ANESTHESIA EQUIPMENT

- Hospital piping systems
- Compressed gas containers
- Anesthesia machines (vaporizers, breathing systems, flow meters, valves, carbon dioxide absorption)
- Endotracheal equipment
- Accessories (blood warmers, blockade monitors, pressure transducers, infusion pumps, body warmers)

## ANESTHESIA-RELATED MORBIDITY AND MORTALITY

## ALLERGY AND IMMUNOLOGY

## GENETICS

## INFECTIOUS DISEASE

## RADIOLOGY/NUCLEAR MEDICINE