

미국 직업환경의학회 직업환경의학 핵심역량 - ACOEM의 OEM CORE competency 2021

동아의대 직업환경의학교실
조성식



자료 출처

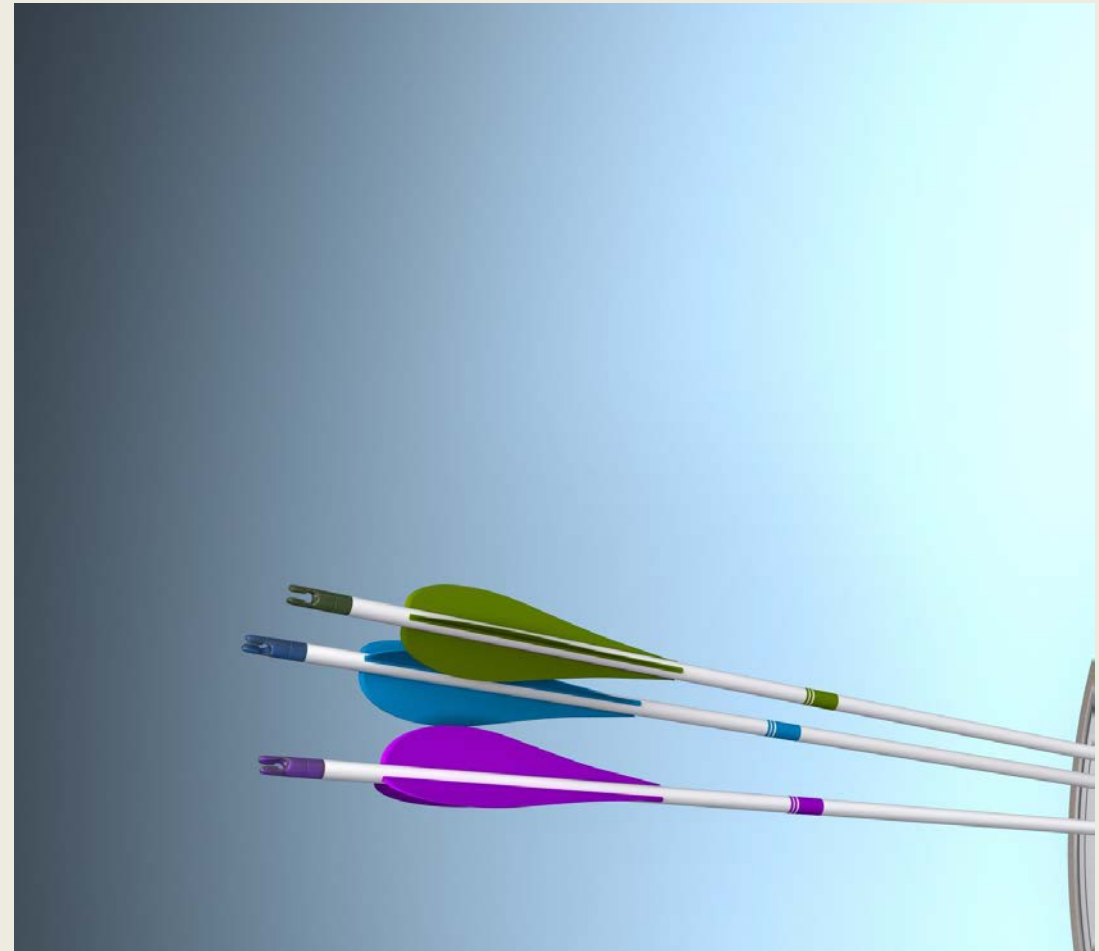
- [ACOEM OEM Core Competencies: 2021 : Journal of Occupational and Environmental Medicine \(lww.com\)](#)



역량(Competency)

원하는 목표를 수행하기 위한

- ▣ 육체적(physical)
- ▣ 지적 (intellectual)
- ▣ 행동적인 (behavioral)
- ▣ 자격(qualifications)





경과

OEM

- 작업(Work) 및 환경(environment)과 건강(health)과의 상호작용에 관심을 두는 의학의 한 분야
- 1998에 최초로 핵심 역량(Core competency)을 설정
- 2008년, 2014년에 개정





American Council for Graduate Medical Education

6개 영역

- (1) 진료 (Patient Care)
- (2) 의학적 지식 (Medical Knowledge)
- (3) 실무를 통한 학습과 개선 (Practice-Based Learning and Improvement)
- (4) 의사소통 능력 (Interpersonal and Communication Skills)
- (5) 전문가 주의 (Professionalism)
- (6) 시스템기반 실행 (Systems-Based practice)





OEM CORE COMPETENCIES

임상 직업환경의학 (Clinical Occupational and Environmental Medicine)

관련 법과 규제 (OEM Related Law and Regulations)

환경의학 (Environmental Health)

업무 적합성과 장애 관리 (Work Fitness and Disability Management)

독성학 (Toxicology)

위해에 대한 인지, 평가, 관리 (Hazard Recognition, Evaluation, and Control)

재난 대비 및 응급 관리 (Disaster Preparedness and Emergency Management)

건강과 업무 (Health and Human Performance)

공중보건, 감시체계, 질병 예방 (Public Health, Surveillance, and Disease Prevention)

관리와 행정 (OEM Related Management and Administration)





임상직업환경의학

- Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism.

법과 규제

- Practice Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism and Systems-Based Practice.

환경의학

- Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism and Systems-Based Practice.





업무 적합성과 장애관리

- Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism and Systems-Based Practice

독성학

- Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Professionalism and Systems-Based Practice

위해(hazard)에 대한 인지, 평가, 관리

- Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills and Systems Based Practice





재난 대비 및 응급관리

- Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills and Systems Based Practice

건강과 업무

- Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills and Systems-Based Practice.

공중보건, 감시체계, 질병예방

- Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism and Systems-Based Practice.

관리와 행정

- Practice Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism and Systems Based Practice.



임상직업환경의학 (General)

□ Core Knowledge and Skills

1. 직업과 노출에 대한 청취
2. 직업 환경적 노출과 환자의 호소의 관련성
3. 직업환경성 질환을 진단하기 위한 진단검사와 영상의학적 해석
4. 업무관련성에 대한 이해
5. 직업성 질환과 손상에 대한 비직업성 요인의 영향
6. 업무관련성 질환의 관리와 필요시 타과 의뢰



7. 산재보험 (Worker's compensation)
8. 치료적 동맹과 위험도 의사소통
9. 직업병 손상에 대한 보고
10. 노동자에서 발생한 비직업적 요인의 손상과 질병
11. 작업 환경 개선을 위한 다른 직업 환경전문가와 협업
12. 근거 기반의학
13. 업무 적합성과 관련한 지식
14. 업무 복귀와 관련한 지식



심혈관 질환

1. Cardiac effects of chemical asphyxiants such as carbon monoxide, methylene chloride, and cyanide
2. Person's ability to perform strenuous or safety-sensitive work after a cardiac event and the risk of sudden or gradual impairment or incapacitation due to that cardiac condition
3. Cardiac risk factors in employee risk assessment and patient counseling
4. Interpret electrocardiogram for ischemia, evidence of infarction, conduction disorders and arrhythmias and refer if appropriate



피부질환

1. Occupational skin disorders by history, examination, and diagnostic evaluation.
2. Work aggravated dermatoses.
3. Cause of allergic contact dermatitis and allergic contact urticaria
 - caused by common antigens such as latex, epoxy monomer, nickel, and rhus
4. Primary irritant-induced dermatoses.
5. Potentially contagious skin conditions
 - varicella/zoster, herpes, Methicillin-Resistant Staphylococcus Aureus (MRSA), or other skin infection causing pathogens.
6. OTHER occupational dermatoses
 - occupational acne, occupational cutaneous infections, occupational skin neoplasia, occupational pigmentary disorders.
7. Manage occupational and environmental skin injuries and dermatoses
 - lacerations, contact or allergic dermatitis, chemical and other types of burns.
8. Dermatologic conditions on the performance of job tasks.



응급질환

1. Clinical management of individuals involved in hazardous materials incidents, including substance-specific first aid and medical management
2. Emergency care for life-threatening respiratory, central nervous system, renal, cardiac, or other target organ failure, pending the identification of a specific exposure agent.
3. Basic wound repair techniques.
4. Ophthalmic injuries
5. Exposure to physical hazards including heat, cold, and radiation exposure.
6. Emergency preparedness programs and triage concepts.



내분비계 질환

1. Initial diagnostic tests to evaluate common endocrine conditions.
2. Poorly controlled endocrine conditions, such as diabetes mellitus on the worker's health and ability to work.
3. Endocrine conditions (eg, hypothyroidism, diabetes) might cause or exacerbate work-related conditions (eg: carpal tunnel syndrome).
4. Endocrine emergencies in the workplace such as hypoglycemia



간 및 소화기계 질환

1. Liver function enzymes in the context of evidence of exposure to workplace or environmental toxicants.
2. Personal risk of exposure to hepatotoxic agents.
3. gastro-enteric conditions and their impact on the worker's health and ability to work.



혈액/종양 질환

1. Interpret hematologic laboratory studies in the context of medical surveillance and post-exposure examinations.
2. Health effects of exposure to hematologic toxicants such as benzene, lead, and arsine.
3. Hematologic/oncologic medical conditions or their treatment on impact on the worker's health and ability to work.



감염성 질환

1. Identify, manage, treat, or refer
 1. Bloodborne, airborne, waterborne, and food borne pathogen exposure and associated illnesses.
 2. Infestations and zoonotic conditions.
 3. Transmission of infection by those in certain occupations such as food service workers.
2. Immunization of the working populations.
3. Recommendations for infectious disease prevention, surveillance, exposure evaluation and treatment (CDC, OSHA)
4. Endemics, epidemics, and pandemics.
5. Potential blood borne pathogen, tuberculosis, or other occupational infectious disease exposure according to applicable government guidelines



근골격계 질환

1. Comprehensive musculoskeletal evaluations, including the history, physical examination, appropriate imaging or laboratory studies, and the investigation of occupational risk factors.
2. Pathophysiology, evaluation, and management of work-related musculoskeletal injury
3. Interpret common diagnostic studies used to evaluate musculoskeletal disorder
4. Options and controversies in the treatment of musculoskeletal conditions.
5. Acute and chronic musculoskeletal disorders and their associated disabilities
6. Spine disorders; cumulative trauma disorders; joint and extremity injuries and disorders; degenerative diseases of bones, joints, and connective tissue.
7. Rehabilitation services for an injured worker.
8. Delayed recovery and manage chronic musculoskeletal pain
9. Musculoskeletal conditions on fitness for duty



신경계 질환

1. Perform focused neurological and mental status examinations
2. Neurological and mental status examination procedures Such as imaging, electrodiagnostic or electrophysiologic studies or neuropsychological/neurocognitive testing
3. Recognize neurologic emergencies
4. Return to work.
5. Understand and interpret diagnostic testing (eg: nerve conduction studies or electromyography).
6. Neurologic conditions on fitness for duty, especially in safety-sensitive occupations.

안질환

1. ophthalmic examinations (including visual acuity and color/depth tests, assessment for foreign bodies or other abnormalities)
2. occupational ophthalmic diseases and injuries. These may include infectious and irritant conjunctivitis, ultraviolet photokeratitis, ocular chemical exposures and burns (including alkali, acid, and hydrofluoric acid).
3. specialized ophthalmologic evaluation.
4. ophthalmic abnormalities in fitness for duty determinations.



이비인후계 질환

1. Nasopharyngeal conditions caused or aggravated by occupational and environmental exposure, including allergies, rhinitis, or pharyngitis
2. Hearing loss or other occupationally related otologic conditions such as external otitis related to, or complicated by, the use of hearing protection
3. Identify noise-induced hearing loss
4. Interpret an audiogram, identify a standard threshold shift
5. Hearing conservation programs, and in the selection of appropriate hearing protection options for employees
6. Hearing abnormalities in fitness for duty.



통증

1. Difference between acute and chronic pain
2. Evidence-based medicine.
3. Acute opioid prescription and chronic opioid management.
4. Collaborate on a treatment plan that includes functional restoration and return-to-work planning.
5. Pain and any treatment on fitness for duty, especially in safety sensitive positions.
6. State's prescription drug monitoring program.



정신 건강

1. Drug abuse and employee assistance programs.
2. Warning signs of the violent, homicidal, or suicidal employee
3. Workers who may be under the influence of psychoactive chemicals at work (eg, industrial exposure, medications, recreational drugs, alcohol)
4. Support access to psychological care
 - ▣ such as work-focused cognitive behavioral therapy, for patients at risk for disability due to behavioral risk factors such as pain catastrophizing, disability beliefs and fear/avoidance behavior
5. Perform a mental health and psycho-social history
6. Psychological conditions and their treatment on fit ness for duty
7. Determine the need for and recommend appropriate limitations or accommodations for workers with mental health conditions
8. Evidence-based guidelines For return to work for individuals with mental health conditions.
9. Burnout
10. Social determinants of health on employee health and wellness



호흡기계 질환

1. Occupational/environmental lung disorders
 - ▣ Work-related asthma, pneumoconiosis, irritant inhalations, chronic obstructive pulmonary disease, hypersensitivity pneumonitis, inhalation fever, bronchiolitis obliterans, lung cancer, mesothelioma, and obstructive sleep apnea
2. Work restrictions and accommodations for both occupational and non-occupational lung diseases.
3. Spirogram
4. Respirator certification examinations
5. Respirator options, in consultation with an industrial hygienist if needed, in consideration of clinical conditions (eg, use of pressure demand respirator in patient with cardiac disease).
6. Pulmonary conditions on the worker's health and ability to work
7. Controls to reduce exposure and minimize risk for pulmonary disease and impairment



생식기계 질환

1. potential adverse reproductive outcomes to both men and women from chemical, biological, physical, biomechanical, and psychological exposures
2. reproductive toxicology information.
3. pregnant or lactating employees.



수면질환

1. Sleep disorder
 - ▣ such as obstructive sleep apnea, circadian rhythm sleep disorders or fatigue.
2. Diagnostic testing as appropriate
3. Sleep disorders on fitness for duty, especially in safety sensitive positions.





2. 법과 규제

1. Understand and apply applicable regulations, related to occupational health practice, to employers, employees, and patients, including:
 - a. OSHA standards and regulations, including the General Duty Clause
 - b. The privacy provisions of the Health Insurance Portability and Accountability Act (HIPAA), including exceptions related to workers' compensation and public safety
 - c. DOT and other federal regulations regarding fitness for duty in safety sensitive positions
 - d. Federal and state drug testing regulations
 - e. Drug-free workplace programs
2. Patients' legal rights to confidentiality of medical records information.
3. Electronic communication and apply appropriate controls in communication and record keeping
4. Maintain complete, timely, and legible records





5. Recognize and address ethical dilemmas in the practice of OEM, using relevant guidelines
6. If providing workers' compensation related care, comply with requirements of relevant statutes, including completion of the required forms and cooperation with case management and return-to-work planning.
7. Report cases of occupational injury, illness, and/or death according to existing regulations
8. Balance ethical principles applicable to individual patient care to those that apply to addressing population health concerns, for example, the need to report a hazard that may impact others, against the wishes of an affected patient
9. Respond appropriately to impairment in self and other health care professionals
10. Appropriately implement and explain consensus standards applicable to specific groups of employees





3. 환경의학

1. Environmental exposure and recommend methods of reducing environmental health risks.
2. common illnesses that may be impacted by environmental exposures.
3. 환경위해도 평가 (Characterize health risks based on hazard identification, exposure assessment, and effectively communicate risk)
4. environmental mitigation and exposure





4. 업무 적합성 평가와 장애관리

1. Integrate work disability prevention and management principles into delivery of clinical care.
2. Clinical treatment protocols that are consistent with current best practice and evidence-based medicine.
3. Explain and make clinical decisions as well as placement/accommodation recommendations relating to the concept of “direct threat” as defined under the ADA and reconcile these decisions with public safety considerations as defined by other systems.
4. Translate impairment assessments into safe work functional capacity statements for the use of employers in placing employees in jobs.
5. Conduct evaluations to determine fitness for duty in compliance with applicable regulations in reference to specific work exposures, work tasks, or public safety concerns.
6. Address employment concerns for patients with identified temporary or permanent medical conditions.
7. Refer to the ACOEM guidance documents relevant to this topic.





5. 독성학

1. *Health effects from toxic exposures.*
2. *Understand the potential toxicity, including medical surveillance requirements and protection standards related to materials used by working populations (eg, pre-placement or surveillance examinations).*
3. *Obtain information about hazardous materials implicated or suspected in toxic exposure*





- 4. Characterize risk of exposure, absorption, and toxic effects.*
- 5. Laboratory studies to determine acute organ or metabolic effects.*
- 6. Referral for specialty evaluation or further exposure evaluation.*
- 7. Recognize conditions that may be sentinel events associated with toxic exposures and take appropriate action to protect the health of others*





6. 위해에 대한 인지, 평가, 관리

1. Recognize common occupational hazards and most appropriate exposure control measures
2. Understand protective measures appropriate for the hazards of interest in the working populations
3. Communicate concerns related to health hazards to appropriate employer health and safety professionals; participate in mitigation efforts.





7. 재난 대비

1. Knowledge of local threats
 - ▣ for example, nuclear plants, chemical production facilities.
2. Participate in local emergency response exercises
3. Understand how to activate/notify others in the emergency response system
4. Recognize sentinel events that may represent a potential disaster or epidemic.
5. Understand local clinical role in the community emergency/disaster response plan





8. 건강과 업무 (performance)

1. Burnout in employees
2. Perform health risk assessments, biometric screenings
3. Counsel employees about health risks and lifestyle.
4. Individual and population health risk behaviors.
5. Cultural, ethnic, educational, and language variations among workers when providing information on occupational hazard prevention, disease prevention, and health promotion.





9. 공중보건 감시체계 질병예방

1. Medical surveillance program to protect workers, ensuring compliance with applicable regulations when appropriate as well as monitor, interpret, and act on results.
2. Advise employers concerning trends in occupational injury and illness.
3. Prevention programs
such as the National CDC Diabetes Prevention Program.
4. Suspected chemical impairment, including collection of specimens





5. blood borne pathogen, tuberculosis, or other occupational infectious disease
6. exposure controls to mitigate hazards faced in the workplace.
7. Intervene in response to positive findings when indicated to measurably improve health outcomes.
8. Interpret abnormal laboratory findings in asymptomatic workers
9. potential sentinel events.

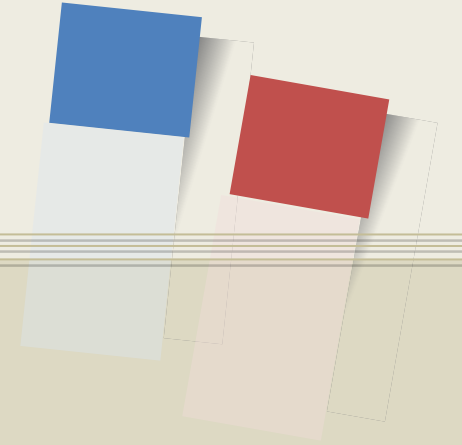




10. 관리와 행정

1. Manage patient records and protect confidentiality.
2. Work effectively as a team member with administrators, occupational health nurses, nurse practitioners, physician assistants, and others
3. Develop an education and marketing plan for an occupational environmental health program.
4. Use information technology (eg, e-mail, local and wide area networks, internet, video conferencing technologies) to communicate with colleagues, clients, and others.
5. Determine management information needs and apply medical informatics, electronic health and patient care data, management information systems, and other computer technologies to an OEM program.





Thank You for Listening

