The objective of the Medical Review Officer Certification Council (MROCC) is to recognize the competence of those physicians who have developed specialized knowledge and are proficient in the performance of the essential duties of the MRO. To this end, the MROCC examination has been designed to measure the fund of knowledge and practical skills that the MRO applies in the evaluation of workforce drug tests, whether performed in the regulated or private sector. MROCC certification is voluntary and is not a form of licensure. However, MRO certification is required for the medical review of federally regulated drug tests. MROCC has been approved by the US Department of Health and Human Services Secretary to offer MRO certification through examination. MROCC certification meets US Department of Transportation and US Department of Health and Human Services requirements for MRO qualification.

MROCC is a certification program created by the American College of Occupational and Environmental Medicine, the American Medical Association, the American Academy of Clinical Toxicology, the American College of Medical Toxicology, the College of American Pathologists, and the American Society of Addiction Medicine.

Initially developed under the direction of Wayne State University, the process of examination development has followed a comprehensive plan to ensure relevance, validity and reliability over the prior decades. Examination items have been developed and critically reviewed by nationally recognized leaders in drug testing drawn from the fields of occupational medicine, addiction medicine, forensic chemistry and toxicology and the legal profession. In addition, leading experts in educational measurement, evaluation and psychometrics have provided guidance to the process.

DESCRIPTION OF THE EXAMINATION

The examination consists of approximately 110 multiple choice test items, distributed by content area according to the examination blueprint, as established by the MROCC Board of Directors. The examination intermingles recall (recognition), simple interpretation (analysis), and problem solving (evaluation) types of questions. There is also a combination of "A" type, "X" type, and "M" type items (see examples at end of document).

Scores are determined based upon the total number of items answered correctly, with no penalty for guessing. Passing scores are not determined on the basis of subcategory scores.

The examinee should prepare for the examination by becoming familiar with the areas represented in the examination blueprint. However, this content outline is flexible in structure and subject to change to accommodate new content and shifts in emphasis. Broad based learning which establishes a general fund of knowledge and understanding of the concepts relevant to the duties of the MRO is the best preparation for this examination. A bibliography of useful references is included to assist the MRO in preparation for the examination.
While MRO training courses provide an adequate fund of knowledge to pass the MROCC examination, not every question on the examination will be covered as content in any one training course. Thus, supplementation of coursework with reading of the literature and sources in the bibliography can be helpful.

As a professional MRO distinguished by MROCC certification, the physician is expected to be an expert in drug and alcohol testing, and the application of federal regulations and private sector programming to the process. However, the expectation goes beyond a mere understanding of the mechanisms of interpreting a test and assuring proper chain of custody. The professional MRO may also be called upon to serve as a consultant to clinical colleagues, business, industry, labor, government or academia on issues relating to prevention, detection and control of substance misuse. Thus, there may be a minority of examination questions that are less directly tied to the traditional MRO role of drug test interpretation, expanding into the broader fund of knowledge of the physician serving as a consultant on substance abuse issues.

A few additional comments and tips for those preparing to take the MROCC examination:

- Drug testing is an expanding and diverse field. MRO training courses, through lectures and readings, will cover the vast majority of questions on the exam. However, the full domain of important issues cannot be neatly packaged in any course or set of readings.

- A good examination strategy is to go through the exam once at a reasonable pace without lingering on items that you are not sure about -- flag those and come back to them later.

- Caution: When taking the paper exam, if the responses on your answer sheet get out of order for a single item, you can have a long string of incorrect responses. Thus, enter your responses carefully.

- There is no penalty for guessing, so it is to your advantage to avoid leaving any items blank.

Scoring and Notification
State of the art psychometric procedures are employed for scoring and the determination of the minimum passing level. Scoring is criterion based with adjustment for the varying difficulty of each examination. Standards are set and equating is performed using similar procedures as those used by Educational Testing Service, the National Board of Medical Examiners and other certifying bodies.

Publication of Certified MROs
A searchable directory of currently-certified MROs is available on the MROCC website, https://www.mrocc.org/search.cfm. This directory assists employers and others in need of MRO services in identifying physicians who are distinguished by MROCC certification.
I. SUBSTANCE USE DISORDERS (5%)

COMPETENCY STATEMENT:
Although the skills of the MRO may be quite different from those of the addiction medicine specialist, the MRO must be knowledgeable about and have clinical experience in the field of substance use disorders. MROs may be called upon to be a general resource for substance use issues. General knowledge in the area of addictive disorders will enable the MRO to:

- recognize the public health implications of inappropriate substance use.
- recognize the clinical and behavioral signs of substance use disorders.
- recognize problems of prescription drug use, misuse and overuse, including the use of opioids and non-DOT regulated prescription drugs.
- describe the natural history and epidemiology of substance use disorders.
- interact effectively with assessment and treatment professionals in the management of individuals identified with alcohol and/or substance use disorders, and workplace prevention and control programs for inappropriate substance use.
- serve as a resource to the employer on issues of aftercare monitoring, return-to-work and medical qualifications for the performance of safety sensitive tasks.
II. REGULATORY ISSUES AND MRO ROLE (50%)

COMPETENCY STATEMENT:
The MRO must be and remain knowledgeable about HHS Mandatory Guidelines, and DOT and DOT Agency regulations which impact organizations for whom the MRO evaluates drug test results. The MRO is often called upon to assist clients in the implementation of legally defensible policies and programs. Therefore, the MRO must be able to advise organizations about both regulated and non-regulated drug and alcohol testing procedures.

Knowledge in the area of regulatory issues and MRO responsibilities will enable the MRO to:

• interact effectively with other program participants, including employees, employers, DERs, SAPs, TPAs, prescribing physicians, other health care workers, laboratories and collection sites.
• advise employers in the development and implementation of effective workplace substance misuse prevention program policies and procedures in both regulated and private sector settings.
• comply with applicable laws and federal regulations in the review, interpretation and reporting of drug test results, including confidentiality, documentation, record maintenance and storage, and release of information.
• develop a standard operating procedure for conducting an effective MRO interview which complies with applicable regulations.
• recognize and address the major legal and regulatory issues that face the MRO, other service providers and employers in the establishment and implementation of drug testing programs.
• serve as an expert consultant or witness on matters involving drug testing.
• adhere to and uphold the professional code of ethics relating to drug testing.
• evaluate and help manage collector services, laboratory services, and other services in the program to ensure reliability, confidentiality, efficiency, appropriateness, and promptness of these services in response to the employer’s needs.
TOPICS ON EXAMINATION:

- MRO Role in federal testing programs
- Federal regulations & programs (DOT, DOT Agencies, HHS, NRC, etc.)
- Communication & reporting of results to employers, employees & other participants (DERs, SAPs, TPAs, etc.)
- Recordkeeping
- Company drug-free workforce policies
- Medical-Legal issues
- Confidentiality

REFERENCES:


SAMHSA, “Medical Review Officer Guidance Manual for Federal Workplace Drug Testing Programs”:
https://www.samhsa.gov/workplace


U.S. DOT Employer Guide: https://www.transportation.gov/odapc

III. TOXICOLOGY, PHARMACOLOGY AND LABORATORY ISSUES (20%)

COMPETENCY STATEMENT:

The MRO must be knowledgeable of the toxicology and pharmacology of frequently misused substances. While the MRO is not a laboratory director, the MRO must know what goes on in the laboratory and how quality is assured. Knowledge in these areas will enable the MRO to:

- recognize and describe the pharmaco/toxicokinetics of drugs (both regulated and non-DOT regulated) and alcohol.
- recognize both trade names and generic names for substances that are likely to appear in a DOT or non-DOT drug screen, interfere with a drug test, or be presented to the MRO as a donor explanation for a positive drug test.
- recognize the appropriate analytical methods for drug and alcohol screening and confirmation, and properly interpret results, with consideration of limits of detection, sensitivity, specificity, limitations, interferences, cost and availability.
- advise clients regarding the use of various matrices and technologies for drug testing.
- provide consultation to clients regarding testing for substances of abuse including both regulated and non-DOT regulated drugs, including prescription substances, non-prescription substances, cotinine (nicotine) and alcohol.
- describe laboratory QA, QC, and certification requirements to an employer or other interested party.
- efficiently transmit and receive drug test data and information while maintaining donor confidentiality.
- evaluate laboratory findings relating to specimen validity.
- recognize the basic types and mechanisms of action of performance enhancing drugs.
TOPICS ON EXAMINATION:

- Pharmacology and toxicology of drugs of abuse and alcohol
- Analytical methods, new technologies
- Laboratory quality control and chain of custody
- Laboratory certification
- Laboratory communication with the MRO
- Alcohol testing (analytical issues)
- Specimen validity testing

REFERENCES:


National Laboratory Certification Program (NLCP). Drug Testing Matters. [https://forensicrti.org/nlcp/drug-testing-matters/](https://forensicrti.org/nlcp/drug-testing-matters/)

IV. CLINICAL ASPECTS (10%)

COMPETENCY STATEMENT:

The MRO must be familiar with clinical issues related to drug and alcohol use and testing, including medical explanations for non-negative tests and medical qualifications for performance safety sensitive tasks. Knowledge in these clinical areas will enable the MRO to:

- recognize clinical evidence of drug misuse.
- evaluate alternative medical explanations for laboratory drug test results (including positive, substituted, adulterated, invalid and dilute specimens).
- evaluate the inability to produce a specimen.
- recognize and appropriately respond to conditions which may render an individual unfit and/or unqualified for duty, including: (1) unauthorized drug use, (2) authorized prescription or over-the-counter drug use, (3) substance use disorders, and (4) illness.

TOPICS ON EXAMINATION:

- Acceptable medical explanations
- Clinical assessment of drug use, misuse and impairment
- Determination of fitness for duty
- Inadequate specimen volume

REFERENCES:


V. COLLECTIONS AND PROCEDURES (15%)

COMPETENCY STATEMENT:
Although MROs do not routinely collect specimens, they must thoroughly understand collection procedures and chain of custody issues, as well as correctable and fatal flaws. Knowledge in the area of collections and procedures will enable MROs to:

- describe and apply appropriate procedures for specimen collections, including observed and unobserved, split specimen, insufficient quantity collections, and urine testing, oral fluid testing, hair testing, blood testing, sweat testing, etc.
- describe and apply appropriate procedures for the use of custody and control forms.
- identify and address procedural errors.
- describe and apply appropriate procedures for alcohol testing.
- serve as a consultant to BATs, STTs and employers on alcohol testing procedures.

TOPICS ON EXAMINATION:
- Collection procedures for specimens
- Observed and unobserved collections
- Custody and control forms and chain of custody
- Split specimen procedures
- Problems in drug tests including fatal and correctable flaws
- Types of testing (applicant, periodic, random, for-cause, etc)
- Alcohol testing (BAT issues)

REFERENCES:

Peterson KW, American College of Occupational and Environmental Medicine, Drug and Alcohol Testing Medical Review Officer Course Syllabus and Resource Manual, updated annually. Sections on collections and procedures.


ADDITIONAL SUGGESTED REFERENCES & ONLINE RESOURCES FOR PRACTICING MROS

MROCC website: https://www.mrocc.org
Medical Review Officer Certification Council (MROCC). MRO Quarterly Newsletter. https://mrocc.org/newsletters.cfm

MRO List Server (moderated by Dr. Karl Auerbach) – to subscribe, send an email to MROLSERVICE@GMAIL.com with the subject "SUBSCRIBE MRO"


U.S. DOT ODAPC List Server: https://www.transportation.gov/odapc/ListServe_Notices

U. S. Department of Transportation, Office of Drug and Alcohol Policy and Compliance: https://www.transportation.gov/odapc

SAMHSA’s Direct Division of Workplace Programs/CSAP link: https://www.samhsa.gov/workplace/

GPO Gate – Free source of Federal Register documents: https://www.gpo.gov/fdsys
SAMPLE TEST ITEMS (more available on MROCC website):

"A" type (single best answer):

Each of the questions or incomplete statements below is followed by four or five response options. Select the ONE BEST RESPONSE in each case and completely fill in the circle containing the corresponding letter on the score sheet.

1. Testing for which of the following drugs of abuse is **NOT** required by Department of Transportation mandated drug testing programs?
   a. Marijuana  
   b. Phencyclidine  
   c. Opiates  
   d. Barbiturates  
   e. Amphetamines

   Answer: d

"X" type (multiple true/false):

Each of the questions or incomplete statements below is followed by four or five response options. **One, more than one, or all may be correct.** Select all correct responses, and completely fill in the circle(s) containing the corresponding letter(s) on the score sheet.

2. Which of the following drug matrices may be used for preemployment drug testing of a truck driver under DOT?
   a. Urine  
   b. Hair  
   c. Oral Fluid  
   d. Sweat  
   e. Breath

   Answer: a, c

*Note that the "X" type item is essentially a multiple true-false item. While the use of this item architecture may be unfamiliar and difficult for some examinees, statistical reliability is enhanced when the "X" type items are added to the "A" type items. Examinees should note that the difficulty of each examination is adjusted in the scoring process, and that on the average, the use of the "X" type item will not reduce an examinee's overall likelihood of passing the examination. This replaces the older "K" type item (a = 1,2&3 are correct; b=2&4 are correct, etc.), which psychometric research has determined to be unreliable. The "K" type item incorporated logical clues creating guessing advantages and reducing the item's value in testing the subject matter. Most boards no longer use the familiar "K" type item.
Additional note: While some physicians may opine that marijuana can be legitimately recommended for treatment of pain, and in many states can be obtained legally, marijuana remains a Schedule I drug and thus cannot be “prescribed”.

"M" type (matching):

This section consists of a list of four or five lettered response options followed by several numbered items. For each numbered item, select the single best response option. A lettered option, however, may be selected once, more than once, or not at all.

Items 3-4:

   Response options:
   a. Marijuana
   b. Phencyclidine
   c. Opiates
   d. Benzodiazepines
   e. Cocaine

3. Frequently associated with injected conjunctivae, an odor of burning leaves and a temporary increase in appetite.

   Answer: a


   Answers: d