Q&A column

Editor: Frederick L. Kiechle, MD, PhD

Submit your pathology-related question for reply by appropriate medical consultants. CAP TODAY will make every effort to answer all relevant questions. However, those questions that are not of general interest may not receive a reply. For your question to be considered, you must include your name and address; this information will be omitted if your question is published in CAP TODAY.

Q. Is there a CAP guideline that recommends that patients stop taking drugs that may interfere with a blood or urine test before providing a specimen?

A.August 2023—There is no CAP guideline and no other recommendation that we know of pertaining to stopping drugs that may interfere with laboratory testing prior to specimen collection. This is an important topic for all laboratory testing, not just for toxicology. There are many factors to consider when determining possible drug interference, including what drugs the patient is taking, what testing has been requested, and what testing modality is being used.

The laboratory must first identify what prescription and over-the-counter medications and herbal supplements the patient is taking and whether it is safe to pause their use.[1] Many patients may have adverse outcomes if they stop taking their medication. In general, patients should not stop taking their antidepressants.[2]

If a medication can be safely stopped, the half-life helps inform when it should be stopped prior to testing. The body fluid (i.e. urine, serum) being tested determines whether the plasma half-life or elimination half-life should be used. In general, a drug will be sufficiently eliminated after five half-lives.

The testing modality being used must also be considered. Immunoassays are more susceptible to interference and cross-reactivity from structurally similar compounds, while other assays are less susceptible.[2] For example, bupropion may cause a false-positive result in some amphetamine immunoassays. Therefore, immunoassays are useful for initial screening of a sample but should be followed up with confirmation testing, often using mass spectrometry, to help avoid false-positive results. That said, ion suppression, isomers, and isobaric compounds may interfere with mass spectrometry assays. Using multiple testing modalities may help overcome the issue of drug interference in specific modalities and provide accurate results.

Physiological and clinical factors, including the presence of medication metabolites, must also be considered when assessing whether a medication may affect laboratory testing.[3] Resources such as *Effects of Drugs on Clinical Laboratory Tests*[4] and *Resolving Erroneous Reports in Toxicology and Therapeutic Drug Monitoring: A Comprehensive Guide*[2] provide a starting point for addressing this issue, but due to the evolution of testing methods and complexity of drug-drug interactions, a thorough literature search is often needed.

1. Dasgupta A. *Effects of Herbal Supplements on Clinical Laboratory Test Results.* De Gruyter; 2011. *Patient Safety;* vol 2.
2. Dasgupta A. *Resolving Erroneous Reports in Toxicology and Therapeutic Drug Monitoring: A Comprehensive Guide*. John Wiley & Sons; 2012.

3. Guder WG, Narayanan S, Wisser H, Zawta B. *Samples: From the Patient to the Laboratory*. 3rd rev ed. Wiley-VCH; 2003.
4. Young DS. *Effects of Drugs on Clinical Laboratory Tests*. 5th ed. AACC Press; 2000.

Miranda D. Chimzar, MD
Post-graduate Year-three Pathology Resident
Department of Pathology
University of Utah and ARUP Laboratories
Salt Lake City, Utah

Gwendolyn A. McMillin, PhD, DABCC(CC,TC)
Professor, Clinical Pathology
University of Utah
Medical Director, Clinical Toxicology
Scientific Director, Mass Spectrometry
ARUP Laboratories
Salt Lake City, Utah
Member, CAP Toxicology Committee

Q. Can laboratory managers and supervisors assess the competency of testing personnel if they do not perform the lab tests themselves?

A.Yes, as long as those responsible for competency assessments have the education and experience required to evaluate the complexity of the testing being assessed and are delegated to perform that duty. For high-complexity testing, this is someone who is qualified as a technical supervisor or general supervisor. For moderate-complexity testing, it is someone who is qualified as a technical consultant. Competency assessors must be knowledgeable about the test systems but are not required to undergo competency assessment themselves unless they are testing personnel for that system.

Most clinical laboratory specialties require a technical supervisor to have a minimum of a bachelor's degree in a chemical, physical, or biological science or in medical technology, from an accredited institution, and at least four years of laboratory training and/or experience in high-complexity testing. The requirements for clinical cytogenetics, histocompatibility, molecular pathology, and transfusion medicine are more stringent and are provided in the CAP checklist related to the specific discipline. A general supervisor must have a minimum of an associate's degree in a laboratory science or medical technology (or equivalent) and at least two years of training and/or experience in high-complexity testing. A technical consultant for moderate-complexity testing must have a minimum of a bachelor's degree in a chemical, physical, biological, or clinical laboratory science or in medical technology and at least two years of training and/or experience in nonwaived testing. In all cases, the training and experience must be in the designated specialty or subspecialty area of service for which the individual is responsible.

Centers for Medicare and Medicaid Services. What Do I Need to Do to Assess Personnel Competency? November 2012. https://www.cms.gov/Regulations-and-Guidance/Legislation/CLIA/Downloads/CLIA_CompBrochure_508.pdf

College of American Pathologists. Laboratory general checklist. Oct. 24, 2022.

Sarah Fabian, MLS(ASCP)
Investigations Analyst
CAP Accreditation Programs
College of American Pathologists

Northfield, Ill.

Submit your pathology-related question

Submit your pathology-related question for reply by appropriate medical consultants. CAP TODAY will make every effort to answer all relevant questions. However, those questions that are not of general interest may not receive a reply. For your question to be considered, you must include your name and address; this information will be omitted if your question is published in CAP TODAY.

Submit a Question