CLINICAL AND LABORATORY STANDARDS INSTITUTE®

1st Edition

C63

Laboratory Support for Pain Management Programs

This guideline provides recommendations for medical laboratories and clinical practices that provide services for pain management.

A guideline for global application developed through the Clinical and Laboratory Standards Institute consensus process.

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Abstract

Clinical and Laboratory Standards Institute guideline C63—*Laboratory Support for Pain Management Programs* provides recommendations for medical laboratory toxicology-based testing services in support of the care and treatment of persons in pain management programs. This guideline discusses specimen types and collection, testing methodologies, and results reporting and interpretation. The intended users of this guideline include medical laboratory scientists and personnel, medical technologists, hospital administrators, physician office personnel, risk managers, pharmacists, and health care providers tasked with implementing pain management testing for their institutions or networks.

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Contents

Foreword

In the mid- to late 1990s, the health care industry recognized that many patients received inadequate pain management during hospitalization. In response, several initiatives evolved, making pain management a major focus of the health care industry and leading to the development of numerous services, clinics, and research efforts dedicated to pain management. Despite much progress in understanding acute and chronic pain mechanisms, pharmacotherapy using opiates and opioids remains the primary therapeutic intervention for patients with chronic pain. In addition, these patients often suffer from anxiety and depression, necessitating the use of anxiolytics and antidepressants.

Because pain management medications pose a risk of addiction and abuse, it is commonplace to monitor patients for compliance with therapy. Regrettably, some patients turn to illicit drugs, while others who are addicted to opioids attempt to acquire them by feigning pain, complicating this testing. To monitor patients, many facilities and providers rely on simple screening of a randomly collected urine specimen for a panel of drugs of abuse. Most often the screening method is immunoassay based and can include point-of-care devices for convenience. Unfortunately, immunoassays for urine drug testing vary considerably in specificity and sensitivity and are associated with both false-positive and false-negative results. These limitations are often poorly understood by health care providers outside the medical laboratory. Because confirmation of a positive screening result is neither practical nor mandated in the patient care setting, testing typically stops with screening. Similarly, an unexpected negative result might not receive additional scrutiny. Both situations have resulted in patients being accused of using nonprescribed drugs or not complying with the use of prescribed drugs and, in some cases, being dismissed from care. Recognizing the seriousness of these consequences, a growing number of laboratories are turning to mass spectrometry–based methods as the first line of testing and encouraging additional testing of any unexpected result, whether positive or negative. There is also growing interest in using alternate specimen types in specific situations. Thus, the needs of pain management services have changed the types of toxicology testing expected of medical laboratories, which have also encountered dramatic increases in testing requests. Laboratories have recognized the need to change testing menus and technologies, implement referral testing services, and find opportunities to interact more with providers who use their services.

This guideline provides recommendations for laboratory support of pain management clinics and services. Every effort has been made to present the state of toxicology testing for this area as it currently exists, recognizing that technological advances continued to change the testing landscape as this guideline was being written.

NOTE: The content of this guideline is supported by the CLSI consensus process and does not necessarily reflect the views of any single individual or organization.

Key Words

Abused drugs, mass spectrometry, opiates, pain management, therapeutic drug monitoring, toxicology

Laboratory Support for Pain Management Programs

Chapter 1: Introduction

This chapter includes:

- Guideline's scope and applicable exclusions
- Background information pertinent to the guideline's content
- Standard precautions information
- "Note on Terminology" that highlights particular use and/or variation in use of terms and/or definitions
- Terms and definitions used in the guideline
- Abbreviations and acronyms used in the guideline

1.1 Scope

This guideline provides recommendations for laboratory support for pain management clinics and services, including guidance on specimen types and collection, testing methodologies, results reporting, and interpretation. To assist in results interpretation, this guideline includes several tables listing expected metabolites for commonly encountered drugs.

The intended users of this guideline include medical laboratory scientists and personnel, hospital administrators, physician office personnel, risk managers, pharmacists, and health care providers tasked with establishing pain management testing for their institutions or networks.

This guideline does not discuss in detail the pathophysiology or biochemistry of chronic pain, nor does it include information on dosing or prescribing of pain management drugs.

1.2 Background

Pain is an important aspect of life that often serves as a warning of injury. Most episodes of pain are acute and time limited, and they resolve with healing. Chronic pain, on the other hand, often evolves without a clear precipitating event and persists over a prolonged time, and its treatment is challenging. Surveys estimate that ≈20% of individuals worldwide report chronic pain and that up to 75% of all individuals experience chronic pain at some point in their lives. Chronic pain is often comorbid with acute events and chronic diseases.[1-3]

Chronic pain treatment is often complex, involving psychological, social, and environmental interventions in addition to management of underlying diseases or pathology. Many patients become candidates for treatment at clinics specializing in pain management. These groups are typically multidisciplinary, involving a variety of physicians as well as other health care providers, such as nurses, pharmacists, laboratorians, nutritionists, and occupational therapists. The goal of treatment is to reduce the level of pain and improve the patient's quality of life.

When non-narcotic analgesics and anti-inflammatories (eg, acetaminophen [paracetamol], ibuprofen, naproxen) fail, pharmacological treatment often involves the use of opiates and opioids. Muscle relaxants,

antidepressants, antiepileptics, sedatives, and topical anesthetics, some of which are controlled substances, are also commonly used and effective in many cases. Table 1 lists many drugs that are of interest in monitoring pain management patients.

The Quality Management System Approach

Clinical and Laboratory Standards Institute (CLSI) subscribes to a quality management system (QMS) approach in the development of standards and guidelines that facilitates project management, defines a document structure using a template, and provides a process to identify needed documents. The QMS approach applies a core set of "quality system essentials" (QSEs), basic to any organization, to all operations in any health care service's path of workflow (ie, operational aspects that define how a particular product or service is provided). The QSEs provide the framework for delivery of any type of product or service, serving as a manager's guide. The QSEs are:

Organization	Personnel	Process Management	Nonconforming Event Management
Customer Focus	Purchasing and Inventory	Documents and Records	Assessments
Facilities and Safety	Equipment	Information Management	Continual Improvement

C63 covers the QSE indicated by an "X." For a description of the other documents listed in the grid, please refer to the Related CLSI Reference Materials section.

Organization	Customer Focus	Facilities and Safety	Personnel	Purchasing and Inventory	Equipment	Process Management	Documents and Records	Information Management	Nonconforming Event Management	Assessments	Continual Improvement
		M29			C24 C50	X C24 C43 C52 C62 EP05 EP06 EP07 EP15 EP17	C52	C52			

Path of Workflow

A path of workflow is the description of the necessary processes to deliver the particular product or service that the organization or entity provides. A laboratory path of workflow consists of the sequential processes: preexamination, examination, and postexamination and their respective sequential subprocesses. All laboratories follow these processes to deliver their services, namely quality laboratory information.

C63 covers the medical laboratory path of workflow processes indicated by an "X." For a description of the other documents listed in the grid, please refer to the Related CLSI Reference Materials section.

Preexamination				Examination			Postexamination	
Examination ordering	Sample collection	Sample transport	Sample receipt and processing	Examination	Results review and follow-up	Interpretation	Results reporting and archiving	Sample management
	C52	C52	X C52	X C24 C52 EP07	X C50 C52	X C50 C52	C52	C52

Related CLSI Reference Materials*

C24 **Statistical Quality Control for Quantitative Measurement Procedures: Principles and Definitions. 4th ed., 2016.** This guideline provides definitions, principles, and approaches to laboratory quality control design, implementation, and assessment.

C43 **Gas Chromatography/Mass Spectrometry Confirmation of Drugs. 2nd ed., 2010.** This document provides guidance on establishing uniform practices necessary to produce quality data for quantitation and identification of a drug or drug metabolite using the gas chromatography/mass spectrometry method. Specific quality assurance criteria for maintaining and documenting optimal instrument performance are also presented.

C50 **Mass Spectrometry in the Clinical Laboratory: General Principles and Guidance. 1st ed., 2007.** This guideline provides a general understanding of mass spectrometry and the principles that dictate its application in the clinical laboratory. It includes guidance, references, and quality assurance markers that will assist with the implementation and correct operation of a mass spectrometry (MS) system for its many applications. Information on maintaining optimum performance, approaches to ensuring accurate and precise mass measurement, verification of methods, quality control of assays within and between instruments, instrument troubleshooting, sample preparation, interpretation of results, and limitations of the technology is included.

C52 **Toxicology and Drug Testing in the Medical Laboratory. 3rd ed., 2017.** This guideline provides an overview of drug testing by medical laboratories, including testing for drugs of abuse. It discusses the preexamination, examination, and postexamination considerations for specimen collection, methods of analysis, and the reporting and interpretation of results.

C62 **Liquid Chromatography-Mass Spectrometry Methods. 1st ed., 2014.** This document provides guidance to the clinical laboratorian for the reduction of interlaboratory variance and the evaluation of interferences, assay performance, and other pertinent characteristics of clinical assays. This guideline emphasizes particular areas related to assay development and presents a standardized approach for method verification that is specific to mass spectrometry technology.

EP05 **Evaluation of Precision of Quantitative Measurement Procedures. 3rd ed., 2014.** This document provides guidance for evaluating the precision performance of quantitative measurement procedures. It is intended for manufacturers of quantitative measurement procedures and for laboratories that develop or modify such procedures.

EP06 **Evaluation of the Linearity of Quantitative Measurement Procedures; A Statistical Approach. 1st ed., 2003.** This document provides guidance for characterizing the linearity of a method during a method evaluation; for checking linearity as part of routine quality assurance; and for determining and stating a manufacturer's claim for linearity.

EP07 **Interference Testing in Clinical Chemistry. 3rd ed., 2018.** This guideline provides background information, guidance, and experimental procedures for investigating, identifying, and characterizing the effects of interferents on clinical chemistry test results.

EP15 **User Verification of Precision and Estimation of Bias. 3rd ed., 2014.** This document describes the estimation of imprecision and of bias for clinical laboratory quantitative measurement procedures using a protocol that can be completed within as few as five days.

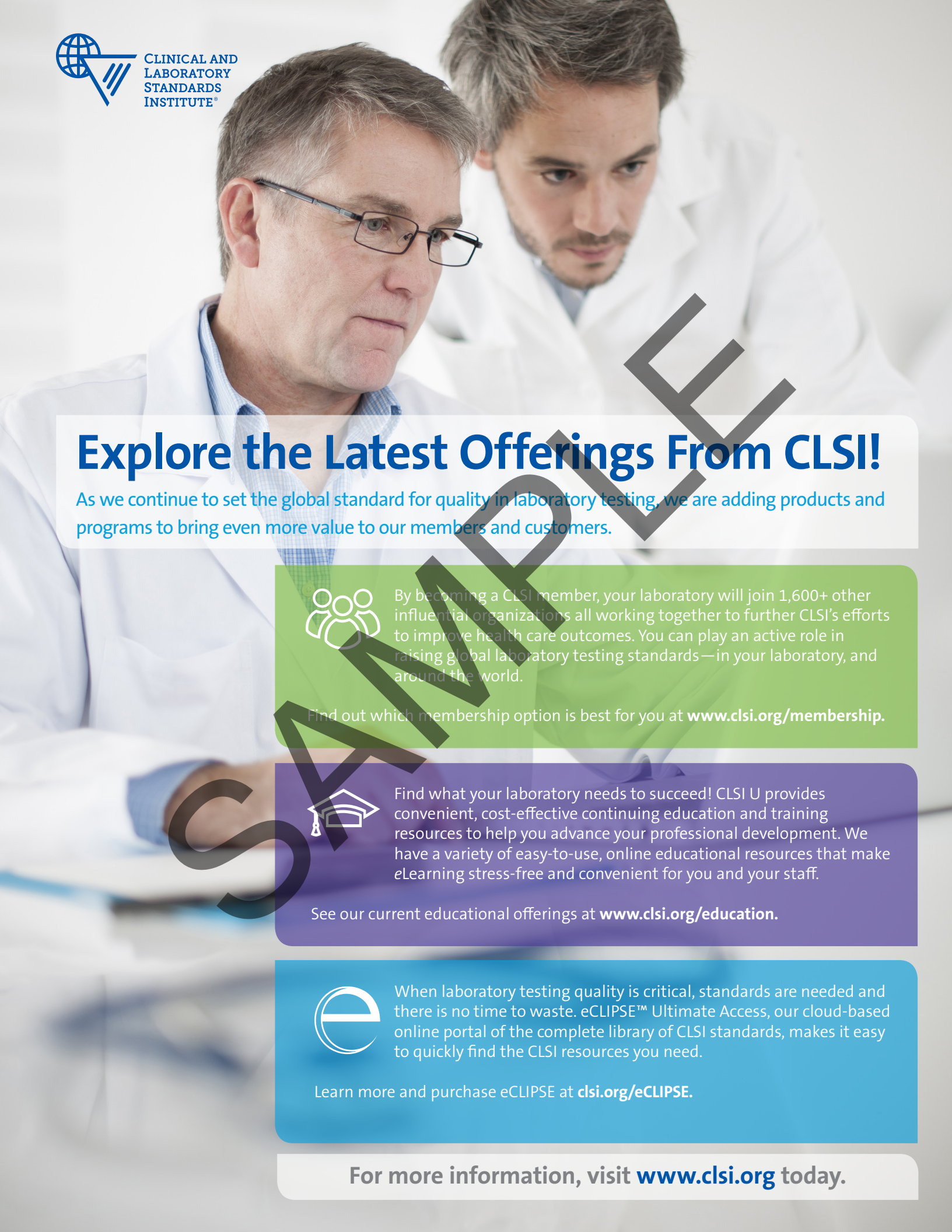
EP17 **Evaluation of Detection Capability for Clinical Laboratory Measurement Procedures. 2nd ed., 2012.** This document provides guidance for evaluation and documentation of the detection capability of clinical laboratory measurement procedures (ie, limits of blank, detection, and quantitation), for verification of manufacturers' detection capability claims, and for the proper use and interpretation of different detection capability estimates.

* CLSI documents are continually reviewed and revised through the CLSI consensus process; therefore, readers should refer to the most current editions.

Related CLSI Reference Materials (Continued)

M29 **Protection of Laboratory Workers From Occupationally Acquired Infections. 4th ed., 2014.** Based on US regulations, this document provides guidance on the risk of transmission of infectious agents by aerosols, droplets, blood, and body substances in a laboratory setting; specific precautions for preventing the laboratory transmission of microbial infection from laboratory instruments and materials; and recommendations for the management of exposure to infectious agents.

QSRLDT **Quality System Regulation for Laboratory-Developed Tests: A Practical Guide for the Laboratory. 1st ed., 2015.** This practical guide, compiled with the help of experts from the *in vitro* diagnostics industry, is intended for the laboratory that is creating laboratory-developed tests that may be subject to the US Food and Drug Administration (FDA) regulations, specifically the Quality System Regulation (QSReg), 21 CFR Part 820.



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