



CLINICAL AND
LABORATORY
STANDARDS
INSTITUTE

8th Edition

CLSI PRE02™

Collection of Diagnostic Venous Blood Specimens

CLSI PRE02 provides procedures for the collection of diagnostic venous blood specimens, including line draws, blood culture collection, and venipuncture in children.

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

Clinical and Laboratory Standards Institute

Setting the standard for quality in medical laboratory testing around the world.

The Clinical and Laboratory Standards Institute (CLSI) is a not-for-profit membership organization that brings together the varied perspectives and expertise of the worldwide laboratory community for the advancement of a common cause: to foster excellence in laboratory medicine by developing and implementing medical laboratory standards and guidelines that help laboratories fulfill their responsibilities with efficiency, effectiveness, and global applicability.

Consensus Process

Consensus—the substantial agreement by materially affected, competent, and interested parties—is core to the development of all CLSI documents. It does not always connote unanimous agreement but does mean that the participants in the development of a consensus document have considered and resolved all relevant objections and accept the resulting agreement.

Commenting on Documents

CLSI documents undergo periodic evaluation and modification to keep pace with advances in technologies, procedures, methods, and protocols affecting the laboratory or health care.

CLSI's consensus process depends on experts who volunteer to serve as contributing authors and/or as participants in the reviewing and commenting process. At the end of each comment period, the committee that developed the document is obligated to review all comments, respond in writing to all substantive comments, and revise the draft document as appropriate.

Comments on published CLSI documents are equally essential and may be submitted by anyone, at any time, on any document. All comments are managed according to the consensus process by a committee of experts.

Appeal Process

When it is believed that an objection has not been adequately considered and responded to, the process for appeal, documented in the CLSI *Standards Development Policies and Processes*, is followed.

All comments and responses submitted on draft and published documents are retained on file at CLSI and are available upon request.

Get Involved—Volunteer!

Do you use CLSI documents in your workplace? Do you see room for improvement? Would you like to get involved in the revision process? Or maybe you see a need to develop a new document for an emerging technology? CLSI wants to hear from you. We are always looking for volunteers. By donating your time and talents to improve the standards that affect your own work, you will play an active role in improving public health across the globe.

For additional information on committee participation or to submit comments, contact CLSI.

Clinical and Laboratory Standards Institute

P: +1.610.688.0100

F: +1.610.688.0700

www.clsi.org

standard@clsi.org

Collection of Diagnostic Venous Blood Specimens

Judith Dixon, MS, MT(ASCP), BS

Estelle Ninnemann, MLS(ASCP), MBA

Terri A. McElhattan, MHA, MLS, PBT(ASCP), CPI(ACA)

Michael O'Bryan, MD, MHA

Aurora Munoz Pedraza, MC EHDL

George F. Souza, PBT(ASCP), BS

Cherise Ens, MSc., MLT

Valerie Joyner, MBA, MLT(ASCP)

Charles E. Walker, MLT(ASCP)

Abstract

Clinical and Laboratory Standards Institute PRE02—*Collection of Diagnostic Venous Blood Specimens* provides a descriptive, stepwise process and procedures reflecting the quality system essentials format for diagnostic venous blood specimen collection. Special considerations for collections from vascular access devices, blood culture collection, and collections in isolation environments are included, as well as how to handle emergency situations. An expanded appendix section provides helpful tips for collecting specimens from pediatric and other challenging patients.

Clinical and Laboratory Standards Institute (CLSI). *Collection of Diagnostic Venous Blood Specimens*. 8th ed. CLSI standard PRE02. (ISBN 978-1-68440-270-0 [Print]; 978-1-68440-271-7 [Electronic]). Clinical and Laboratory Standards Institute, USA, 2025.

The Clinical and Laboratory Standards Institute consensus process, which is the mechanism for moving a document through two or more levels of review by the health care community, is an ongoing process. Users should expect revised editions of any given document. Because rapid changes in technology may affect the procedures, methods, and protocols in a standard or guideline, users should replace outdated editions with the current editions of CLSI documents. Current editions are listed in the CLSI catalog and posted on our website at www.clsi.org.

If you or your organization is not a member and would like to become one, or to request a copy of the catalog, contact us at:

P: +1.610.688.0100 **F:** +1.610.688.0700 **E:** customerservice@clsi.org **W:** www.clsi.org

Copyright ©2025 Clinical and Laboratory Standards Institute. Except as stated below, any reproduction of content from a CLSI copyrighted standard, guideline, or other product or material requires express written consent from CLSI. All rights reserved. Interested parties may send permission requests to permissions@clsi.org.

CLSI hereby grants permission to each individual member or purchaser to make a single reproduction of this publication for use in its laboratory procedures manual at a single site. To request permission to use this publication in any other manner, e-mail permissions@clsi.org.

To read CLSI's full Copyright Policy, please visit our website at <https://clsi.org/terms-of-use/>.

Suggested Citation

CLSI. *Collection of Diagnostic Venous Blood Specimens*. 8th ed. CLSI standard PRE02. Clinical and Laboratory Standards Institute; 2025.

Previous Editions:

August 1977, February 1979, March 1980, April 1984, July 1991, June 1998, December 2003, October 2007, April 2017

CLSI PRE02-Ed8

ISBN 978-1-68440-270-0 (Print)

ISBN 978-1-68440-271-7 (Electronic)

ISSN 1558-6502 (Print)

ISSN 2162-2914 (Electronic)

Volume 45, Number 3

.....

Committee Membership

Consensus Council

The Consensus Council sets priorities for CLSI standards development and votes on Final Draft documents to confirm that process requirements have been met. Consensus Council members are listed on the CLSI website: <https://clsi.org/standards-development/consensus-council/>

Document Development Committee on Collection of Diagnostic Venous Blood Specimens

Judith Dixon, MS, MT(ASCP), BS

Chairholder

COLA

USA

Terri A. McElhattan, MHA, MLS,

PBT(ASCP), CPI(ACA)

Geisinger Health System

USA

Aurora Munoz Pedraza, MC EHDL

Hospital de Traumatología y

Ortopedía

Mexico

Estelle Ninnemann, MLS(ASCP), MBA

Vice-Chairholder

ACL Laboratories

USAA

Michael O'Bryan, MD, MHA

Greiner Bio-One, Inc.

USA

George F. Souza, PBT(ASCP), BS

Massachusetts General Hospital

USA

Cherise Ens, MSc., MLT

LifeLabs

Canada

Expert Panel on Preexamination Processes

Expert Panel volunteers support the development of CLSI documents by providing technical expertise in specialty areas. Expert Panel members are listed by area of expertise on the CLSI website: <https://clsi.org/standards-development/expert-panels/>

Acknowledgment

CLSI, the Consensus Council, and the Document Development Committee on Collection of Diagnostic Venous Blood Specimens gratefully acknowledge the following volunteers for their important contributions to the revision of CLSI PRE02:

Valerie Joyner, MBA, MLT(ASCP)
Northside Hospital
USA

Charles E. Walker, MLT(ASCP)
Becton Dickinson
USA

Contents

Abstract	i
Committee Membership	iii
Foreword	vii
Chapter 1: Introduction	1
1.1 Scope	2
1.2 Standard Precautions	2
1.3 Terminology	2
Chapter 2: Path of Workflow	5
2.1 Patient Is Registered and Identified	7
2.2 Collection Test Request Is Received	7
2.3 Patient Is Approached and Greeted	7
2.4 Patient Is Identified	8
2.5 Precollection Requirements Are Assessed	9
2.6 Hands Are Cleansed	10
2.7 Patient Is Assessed	10
2.8 Patient Is Positioned	10
2.9 Specimen Is Collected	11
2.10 Specimen Is Labeled	22
2.11 Postvenipuncture Care Is Provided	23
2.12 Specimen Is Handled and Transported	24
Chapter 3: Blood Specimen That Cannot Be Obtained	25
Chapter 4: Complications	29
4.1 Accidental Arterial Puncture	30
4.2 Nerve Injury	30
4.3 Hematoma	30
4.4 Hemolysis	31
4.5 Monitoring Blood Volume Collected	31
4.6 First Aid	31
4.7 Dizziness, Syncope, or Unexpected Nonresponsiveness	32
4.8 Nausea	33
4.9 Vomiting	33
4.10 Convulsive Seizures	33
4.11 Incident Reports	33

Contents (Continued)

Chapter 5: Special Situations	35
5.1 Blood Culture Specimens	36
5.2 Therapeutic Drug Monitoring	37
5.3 Vascular Access Devices and Infusions	37
5.4 Patient Isolation	39
Chapter 6: Quality Management System Elements	41
6.1 Customer Focus	42
6.2 Facilities and Safety Management	42
6.3 Personnel Management	44
6.4 Supplier and Inventory Management	44
6.5 Documents and Records Management	47
6.6 Information Management	47
6.7 Nonconforming Event Management	47
6.8 Assessments	48
6.9 Continual Improvement	48
Chapter 7: Conclusion	49
Chapter 8: Supplemental Information	51
References	52
Appendix A. Difficult Collection	62
Appendix B. Sources for Establishing Maximum Blood Volumes to Be Collected From Patients Susceptible to iatrogenic Anemia	65
Appendix C. Collections Proximal to an Intravenous Infusion Site	66
Appendix D. Preventing Syncope	67
The Quality Management System Approach	70

Foreword

During the collection and handling of blood specimens, numerous errors can occur that pose significant and avoidable risks to the patient and the health care professional. When global standards are not implemented, it is more likely that patients will be injured during the procedure, biologically representative specimens will not be obtained from patients, and test results will not be comparable from one facility to another or between visits for the patient.

The process and procedures detailed in CLSI PRE02 are intended to prevent specimen collection errors that threaten specimen quality, protect health care professionals from accidental exposure, and protect patients from the injuries, complications, and medical mistakes that can result from improperly collected specimens.

Since 1977, CLSI has recognized the importance of the preexamination phase of laboratory testing, including correct blood specimen collection and handling. Highly sophisticated testing technology cannot produce a good result from a poorly collected specimen.

Overview of Changes

CLSI PRE02-Ed8 replaces CLSI GP41-Ed7, published in 2017. Several changes were made in this edition, including:

- Removing duplicate information (ie, that included in CLSI PRE01¹)
- Harmonizing content with other CLSI preexamination documents
- Updating references

NOTE: The content of CLSI PRE02 is supported by the CLSI consensus process and does not necessarily reflect the views of any single individual or organization.

KEY WORDS

antecubital anatomy

blood specimen

**complications from
phlebotomy**

patient identification

phlebotomist

phlebotomy

veins

venipuncture

