

QMS01

A Quality Management System Model for Laboratory Services

This guideline provides a model for medical laboratories to organize the implementation and maintenance of an effective quality management system.

A guideline 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 950 West Valley Road, Suite 2500 Wayne, PA 19087 USA P: +1.610.688.0100 F: +1.610.688.0700 www.clsi.org standard@clsi.org

A Quality Management System Model for Laboratory Services

Anne T. Daley, MS, MT(ASCP)DLM, CMQ/OE(ASQ)CSBB, CLC(AMT)

Lucia M. Berte, MA, MT(ASCP)SBB, DLM, CQA(ASQ)CMQ/OE Kris R. Arney, MT(ASCP) Connie Lien Adams Jenny Bazov, MSc, CQA(ASQ) Michael B. Cohen, MD Kenra Ford, LSSGB, MBA, MT(ASCP) David Kimes

Elizabeth McBride, MLT, BSc, MLS, LQM, CQA(ASQ)
Laura McClannan, MS, MT(ASCP)SBB, CQA(ASQ)
Phillip P. Morehouse, MLT, CMQ/OE(ASQ)
Tania Motschman, MS, MT(ASCP)SBB
Amy Pennock, MS, CQE(ASQ)
Tiea Theurer, MT(ASCP), MQ/OL(ASQ), MPA, PMP, CQE(ASQ)
Janette Wassung

Abstract

Mary Galloway, MS

Clinical and Laboratory Standards Institute guideline QMS01—A Quality Management System Model for Laboratory Services provides the necessary background information and infrastructure to develop a quality management system that meets the laboratory's quality objectives and is consistent with the quality objectives of health care services. This guideline provides a structure for a comprehensive, systematic approach to building quality into the laboratory's processes, assessing the laboratory's performance, implementing quality improvements, and assisting in preparing for or maintaining accreditation.

Clinical and Laboratory Standards Institute (CLSI). *A Quality Management System Model for Laboratory Services*. 5th ed. CLSI guideline QMS01 (ISBN 978-1-68440-043-0 [Print]; ISBN 978-1-68440-044-7 [Electronic]). Clinical and Laboratory Standards Institute, 950 West Valley Road, Suite 2500, Wayne, Pennsylvania 19087 USA, 2019.

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



This is a preview. Click here to purchase the full publication.

Copyright ©2019 Clinical and Laboratory Standards Institute. Except as stated below, any reproduction of content from a CLSI copyrighted standard, guideline, derivative product, or other 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.

Suggested Citation

CLSI. A Quality Management System Model for Laboratory Services. 5th ed. CLSI guideline QMS01. Wayne, PA: Clinical and Laboratory Standards Institute; 2019.

Previous Editions:

July 1998, October 1999, February 2003, November 2004, June 2011

ISBN 978-1-68440-043-0 (Print)
ISBN 978-1-68440-044-7 (Electronic)
ISSN 1558-6502 (Print)
ISSN 2162-2914 (Electronic)

Volume 39, Number 6

Committee Membership

Consensus Council

Dennis J. Ernst, MT(ASCP), NCPT(NCCT) Chairholder Center for Phlebotomy Education USA

Mary Lou Gantzer, PhD, FACB Vice-Chairholder USA

Julia H. Appleton, MT(ASCP), MBA Centers for Medicare & Medicaid Services USA

J. Rex Astles, PhD, FACB, DABCC Centers for Disease Control and Prevention USA Thomas R. Fritsche, MD, PhD, FCAP, FIDSA Marshfield Clinic

Loralie J. Langman, PhD, DABCC, FACB, F-ABFT Mayo Clinic USA

USA

Tania Motschman, MS, MT(ASCP)SBB Laboratory Corporation of America USA

James R. Petisce, PhD BD Diagnostic Systems USA Andrew Quintenz Bio-Rad Laboratories, Inc.

Robert Rej, PhD New York State Department of Health – Wadsworth Center USA

Zivana Tezak, PhD FDA Center for Devices and Radiological Health USA

Document Development Committee on Quality Management Systems

Anne T. Daley, MS, MT(ASCP)DLM, CMQ/OE(ASQ)CSBB, CLC(AMT) Co-Chairholder ARUP Laboratories USA

Lucia M. Berte, MA, MT(ASCP)SBB, DLM, CQA(ASQ)CMQ/OE Co-Chairholder Laboratories Made Better! USA

Kris R. Arney, MT(ASCP) Committee Secretary USA

Michael B. Cohen, MD Wake Forest Baptist Medical Center USA Kenra Ford, LSSGB, MBA, MT(ASCP) Health and Hospitals Corporation USA

Mary Galloway, MS FDA Center for Devices and Radiological Health USA

David Kimes Abbott Laboratories USA

Elizabeth McBride, MLT, BSc, MLS, LQM, CQA(ASQ) College of Physicians and Surgeons of Alberta Canada Phillip P. Morehouse, MLT, CMQ/OE(ASQ) LifeLabs Canada

Tania Motschman, MS, MT(ASCP)SBB Laboratory Corporation of America USA

Amy Pennock, MS, CQE(ASQ) College of American Pathologists USA

Tiea Theurer, MT(ASCP), MQ/OL(ASQ), MPA, PMP, CQE(ASQ) TUV Rheinland USA

Janette Wassung Quality First South Africa

Staff

Clinical and Laboratory Standards Institute USA

Jennifer K. Adams, MT(ASCP), MSHA *Project Manager*

Megan L. Tertel, MA, ELS Editorial Manager

Catherine E.M. Jenkins *Editor*

Kristy L. Leirer, MS

Editor

Laura Martin *Editor*

Acknowledgment for the Expert Panel on Quality Management Systems

CLSI, the Consensus Council, and the Document Development Committee on Quality Management Systems gratefully acknowledge the Expert Panel on Quality Management Systems for serving as technical advisors and subject matter experts during the development of this guideline.

Expert Panel on Quality Management Systems

Tania Motschman, MS, MT(ASCP)SBB Chairholder Laboratory Corporation of America USA

Anne T. Daley, MS, MT(ASCP)DLM, CMQ/OE(ASQ)CSBB, CLC(AMT) Vice-Chairholder ARUP Laboratories USA

Joan M. Carlson, MLT(CMLTA), BSc(MLS), MT(ASCP) Alberta Health Services Canada Julie Coffey, MLT, ART, CMQ/OE(ASQ), CQA

Institute for Quality Management in Healthcare

Jennifer Dawson, DLM(ASCP)SLS, QIHC, QLC/LSSBB/CPHQ/MHA Human Longevity, Inc.

Gillian Rose Edwards, MS, PHM, SM(NRCM)
California Department of Public

Health USA

USA

Canada

Sheri L. Hearn, BS, MPH
Oregon State Public Health Laboratory
USA

Karen Heaton, MLT(CMLTA) Calgary Laboratory Services Canada

Leroy N. Hwang, PhD FDA Center for Devices and Radiological Health USA

Janette Wassung Quality First South Africa

Acknowledgment

CLSI, the Consensus Council, and the Document Development Committee on Quality Management Systems gratefully acknowledge the following volunteers for their important contributions to the development of this guideline:

Connie Lien Adams USA

Jenny Bazov, MSc, CQA(ASQ) Vancouver Prostate Centre Canada

Christine M. Gryko, MT(ASCP) Roswell Park Cancer Institute USA

Zahid Kaleem, MD, FCAP, FASCP USA

Victoria Mallon, BS Hologic, Inc. USA Laura McClannan, MS, MT(ASCP)SBB, CQA(ASQ) Laboratory Corporation of America

Nehal Mehta, MS Roche Diagnostics Asia Pacific Singapore

Deanna Miller, MT(ASCP) Children's Hospital of Alabama USA

Jennifer Prentice, MS, MT(ASCP) Seattle Cancer Care Alliance USA Conrad P. Quinn, BSc (Tech)
Centers for Disease Control and
Prevention
USA

Sheryl Thiessen, MT(ASCP), CLQM, BSMT, MLS(CSMLS), CLM BC's Agency for Pathology and Laboratory Medicine Canada

Frank Wallace, BA Ameritox Laboratories LLC USA

Contents

Abstract	i
Committee Membership	iii
Foreword	ix
Chapter 1: Introduction	1
1.1 Scope	2
1.2 Background	2
1.3 Terminology	4
Chapter 2: The Quality Management System Model	13
2.1 How the Quality Management System Model Was Developed	14
2.2 The Quality System Essentials	20
2.3 Documenting the Quality Management System	22
Chapter 3: Quality System Essentials	27
3.1 Organization and Leadership	28
3.2 Customer Focus	40
3.3 Facilities and Safety Management	45
3.4 Personnel Management	56
3.5 Supplier and Inventory Management	61
3.6 Equipment Management	67
3.7 Process Management	75
3.8 Documents and Records Management	88
3.9 Information Management	94
3.10 Nonconforming Event Management	101
3.11 Assessments	106
3.12 Continual Improvement.	113
Chapter 4: The Laboratory's Path of Workflow	117
4.1 Preexamination Processes	121
4.2 Examination Processes	125
4.3 Postexamination Processes	128
4.4 Consultation on Application of Examination Results to Patient Care	131
4.5 Using the Path of Workflow to Improve Laboratory Services	132

Contents (Continued)

Chapter 5: Implementing the Quality Management System	133
5.1 Planning for the Quality Management System	134
5.2 Preparing the Rationale for a Quality Management System	135
5.3 Performing a Quality System Essential Gap Analysis to Identify What Needs to Be Done	140
5.4 Determining Priorities for Quality System Essential Implementation	141
5.5 Plan for Implementing the Quality Management System	144
5.6 Communicating, Educating, and Training	150
Chapter 6: Applying Quality Management Beyond the Laboratory to a Health Care Organization's Services	155
6.1 A Service Unit's Path of Workflow	156
6.2 The Laboratory as a Model for Other Services	158
Chapter 7: Conclusion	159
Chapter 8: Supplemental Information	163
References	164
Appendix A. Quality System Essentials With ISO 15189:2012, ISO/IEC 17025:2017, and ISO 9001:2015	171
Appendix B1. Directions for Performing a Gap Analysis	174
Appendix B2. Excerpts From the CLSI Quality Management System Gap Analysis Tool	175
Appendix B3. Example of Quality Management System Implementation Plan Progress Chart	177
Appendix C. Quality Management System Implementation Plan: Examples of Actions	179
Appendix D1. Path of Workflow Example for Blood Transfusion	186
Appendix D2. Path of Workflow Example for Medication Use.	187
Appendix D3. Path of Workflow Example for Diagnostic Imaging	188
Appendix D4. Path of Workflow Example for Respiratory Therapy	189
The Quality Management System Approach	190
Related CLSI Reference Materials	193

Foreword

Increased awareness of the costly personal and economic effects of medical errors has underscored the importance of managing quality in health care services. In the present environment of limited resources, quality cannot be taken for granted by those who fund, receive, or provide laboratory services. The historical perspective of quality control and quality assurance as defining quality needs to be superseded by a more comprehensive view of internationally accepted quality practices applied to a laboratory's entire scope of work.

This guideline is intended as a reliable, practical, and easily understood perspective that can be implemented in any laboratory.

QMS01 is a **guideline** that can help laboratories implement a QMS to achieve quality laboratory services and meet international standards and regulatory and accreditation requirements. **QMS01** is **not a standard;** that is, this guideline **does not set requirements** for implementing a QMS. Rather, it **reorganizes existing requirements** for medical laboratories into a more understandable approach. It can be used along with other quality-related documents to design the foundation necessary to achieve an efficient, effective, and sustainable QMS.



NOTE:

QMS01 **is not a standard;** it simply reorganizes existing requirements in a more understandable way.