Bio-Rad Laboratories

Focused Summary of the Final CLIA Rule

Disclaimer: The following interpretive summary is neither comprehensive nor intended for use as guidance for compliance.

Its focus is on a few key or unique additions/changes in the CLIA Final Rule pertaining to general and special requirements for analytical chemistry, special chemistry, hematology and virology only.

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OVERVIEW

1. The Final Rule becomes effective April 24, 2003. Revised qualification requirements for laboratory director become effective February 24, 2003.
2. The Final Rule eliminates separate requirements for moderately complex and highly complex testing. Now, there is waived testing and nonwaived testing.
3. The Final Rule recognizes that QC procedures are essential to production of accurate patient test results. While requirements for QC testing may raise the cost of testing in some settings, CMS comments in the Analysis and Response to Public Comments section that such requirements can ultimately decrease overall costs by improving the accuracy and reliability of testing.
4. In the Federal Register Analysis and Responses to Public Comments, CMS clarifies that laboratories must follow the manufacturer's instructions for control testing if they (the instructions) meet or exceed the QC testing requirements specified in the Final Rule and are not exempted by a procedue control. Procedure controls will be specified by CMS in Appendix C of the State Operations Manual (CMS Pub. 7). These controls appear to be intended for unit dose (point of care) tests.
5. The regulation recognizes that, depending on circumstance, some tests may require more stringent control or monitoring but this is left to the laboratory to establish.
6. Subpart I (Proficiency Testing) has been amended to allow for 80% agreement among consensus or referee laboratories for those tests previously requiring 90% agreement before lab performance can be graded.
7. QC and QA requirements are no longer separate but are combined in the Final Rule among the following sections:
    - Quality Systems for Nonwaived Testing (divided according to specialty; references which specific requirements must be met for that specialty)
    - General Laboratory Systems (some general miscellaneous requirements),
    - Preanalytic Systems (requirements for those activities preceding the analytical phase)
    - Analytic Systems (requirements for those activities directly related to or supporting analysis), and
    - Post Analytic Systems (requirements for test reports and post analytic systems assessment).
8. A requirement that laboratories must be in compliance with applicable Federal, State and local laboratory requirements has been reinstated.
9. CMS plans to publish a rule for laboratory information systems at a later date.

QC Requirements for ALL Non-Waived Testing

No comments are provided for "Existing" requirements

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
NEW	The laboratory must have control procedures that monitor the accuracy and precision of the complete analytical process.	This requirement emphasizes the overall implied responsibility for test result accuracy and reliability. QC materials must be tested in sufficient quantities to accomplish the requirement to detect immediate errors and monitor accuracy and precision over time.	p. 3707 493.1256(a)
	• Detect immediate errors that occur due to test system failure, adverse environmental conditions and operator performance		P. 3708 493.1256(c)(1)
	• Monitor over time the accuracy and precision of test performance		P. 3708 493.1256(c)(2)
NEW	Procedures (procedural controls e.g. electronic QC) approved by CMS as providing equivalent quality testing and specified in Appendix C of the State Operations Manual may be used in place of "traditional" QC practices. (Editorial note: The requirement appears to be designed for POCT and to accommodate new technologies.)	This requirement is primarily intended for Point of Care testing.	p. 3708 493.1256(d)
REVISED	If no procedural control (see above requirement) is specified, at least **once each day** that patient specimens are assayed or examined: (Note: Specific requirements for testing QC per shift for automated Hematology have been removed and now automated Hematology falls under the generic "nonwaived" testing category.)	While the frequency of testing QC materials may be less than previously required, there are a number of references in the Analysis section of the Federal Register that states the laboratory should base the frequency of QC on the laboratory's verification of test system performance. The Analysis recognizes that the verification process may prove that control protocols may require more frequent testing.	p. 3708 493.1256(d)(3)

QC Requirements for ALL Non-Waived Testing (Continued)

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
EXISTING	• Test two control materials of different concentration for quantitative tests.		p. 3708 493.1256(d)(3)(i)
EXISTING	• Test a negative and positive control for qualitative tests.		p. 3708 493.1256(d)(3)(ii)
EXISTING	• Test a negative control and a control material of graded or titered reactivity for tests that produce graded or titered results.		p. 3708 493.1256(d)(3)(iii)
EXISTING	• Test two control materials including one that can detect errors in the extraction process for any test that requires an extraction phase.		p. 3708 493.1256(d)(3)(iv)
NEW	• Test two control materials for each molecular amplification procedure including a control material capable of detecting reaction inhibition where reaction inhibition is known to cause false negative results.	No comment.	p. 3708 493.1256(d)(3)(v)
	For Thin Layer Chromotography:		
EXISTING	• Spot each plate or card with a calibrator containing all known substances or drug groups identified by TLC and reported by the lab.		p. 3708 493.1256(d)(4)(i)
EXISTING	• Include one control material on each plate or card that is processed through each step of patient testing including extraction.		p. 3708 493.1256(d)(4)(ii)

QC Requirements for ALL Non-Waived Testing (Continued)

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
	For each electrophoretic procedure		
EXISTING	• Test at least one control material containing the substances being identified.		p. 3708 493.1256(d)(5)
NEW	Test control materials before resuming patient testing after:	Requires additional testing of QC materials not previously required but often practiced by laboratories.	p. 3708 493.1256(d)(6)
	• A complete change of reagents		p. 3708 493.1256(d)(6)
	• Major preventative maintenance is performed		p. 3708 493.1256(d)(6)
	• Any critical part that may influence test performance is replaced		p. 3708 493.1256(6)
NEW	Over time rotate control material testing among all operators who perform the test.	If a test is run or more than one shift using different operators, the lab must account for QC being performed by those operators.	p. 3708 493.1256(d)(7)
EXISTING	Test control materials in the same manner as patient samples.		p. 3708 493.1256(d)(8)
REVISED	When using a calibration material as a control, use a calibration material from a different lot number than that used to establish a cutoff value or calibrate the test system.	Puts restrictions on the use of calibrators as control materials.	p. 3708 493.1256(d)(9)
EXISTING	Establish or verify criteria for acceptability of all control materials.		p. 3708 493.1256(d)(10)
EXISTING	• Statistical parameters (e.g. mean and standard deviation) for each batch and lot number of control material that provides quantitative results must be defined and available.		p. 3708 493.1256(d)(10)(i)

QC Requirements for ALL Non-Waived Testing (Continued)

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
EXISTING	• Product insert values can be used if they are for the instrument and methodology used by the lab and are verified by the lab.		p. 3708 493.1256(d)(10)(ii)
EXISTING	• Statistical parameters for unassayed control materials must be defined over time and through concurrent testing of control materials having previously determined statistical parameters.		p. 3708 493.1256(d)(10)(iii)
EXISTING	Before reporting patient test results, results of control materials must meet the criteria for acceptable performance set by the laboratory or, where applicable, the manufacturer.		p. 3708 493.1256(f)
EXISTING	Laboratory must document all control procedures performed.		p. 3708 493.1256(g)
NEW	If control materials are not available, the laboratory must use and document an alternative mechanism to detect immediate errors and monitor test system performance over time.	No comment	p. 3708 493.1256(h)

Specific QC Requirements for Virology

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
REVISED	When using cell culture to isolate or identify viruses, the laboratory must simultaneously incubate a cell substrate control or uninoculated cells as a negative control material.	No Comment	p. 3709 493.1265 (a)
EXISTING	The laboratory must document all control procedures performed.		p. 3709 493.1265 (b)

Specific QC Requirements for Routine Chemistry

Note: The Final Rule categorizes blood gas and coagulation as "routine chemistry"

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
	For Blood Gas analyses:		
EXISTING	• Calibrate or verify calibration according to the manufacturer's specifications and with at least the frequency recommended by the manufacturer.		p. 3709 493.1267 (a)
EXISTING	• Test one sample of control material each 8 hours of testing using a combination of control materials that include both low and high values on each day of testing.		p. 3709 493.1267 (b)
EXISTING	• Test one sample of control material each time specimens are tested unless automated instrumentation internally verifies calibration at least every 30 minutes.		p. 3709 493.1267 (c)
EXISTING	• Document all control procedures performed		p. 3709 493.1267 (d)

Specific QC Requirements for Hematology

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
	For manual cell counts using a hemocytometer:		
EXISTING	• One control material must be tested each 8 hours of operation.		p. 3709 493.1269 (a)(1)
EXISTING	• Patient specimens and control materials must be tested in duplicate.		p. 3709 493.1269 (a)(2)
	For all non-manual coagulation test systems		
EXISTING	• Two levels of control materials each 8 hours of operation and each time a reagent is changed.		p. 3709 493.1269 (b)
	For manual coagulation tests:		
EXISTING	• Each individual performing tests must test two levels of control materials before testing patient samples and each time reagent is changed.		p. 3709 493.1269 (c)(1)
EXISTING	• Patient specimens and control materials must be tested in duplicate.		p. 3709 493.1269 (c)(2)
EXISTING	The laboratory must document all control procedures performed.		p. 3709 493.1269 (d)

General Comments Regarding Nonwaived Testing

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
REVISED	The laboratory must request written or electronic authorization for testing within 30 days of original request and document efforts made to obtain the authorization.	Administrative – no comment	p. 3705 493.1241(b)
NEW	Test requisitions must now include sex and age (or date of birth), and where appropriate, time of specimen collection and source of the specimen.	Administrative – no comment	p. 3705 493.1241(c)(1-6)
NEW	Test reports must now include patient's name plus an identification number or a unique patient identifier and identification number.	Administrative – no comment	p. 3713 493.1291(c)(1)
NEW	Laboratories must ensure proper preservation of records, and as applicable, slides, blocks and tissues.	Administrative – no comment	p. 3703 493.1101(e)
REVISED	Laboratories must be able to retrieve a copy of the original test report rather than an "exact duplicate".	Administrative – no comment	p. 3704 493.1105(a)(6)
NEW	Laboratories must ensure that the requisition information is accurately transcribed or entered into the LIS	Administrative – no comment	p. 3706 493.1241(e)
NEW	Laboratories must ensure patient test results are accurately and reliably sent from the point of data entry to the final reports destination in a timely manner	Administrative – no comment	p. 3713 493.1291(a)
EMPHASIZED	The laboratory is ultimately responsible for the quality of results reported. (Refer to Responses on pages 3653, 3655, 3656, **3567**, **3658**, 3663, and **3664.**	On each of these pages of the Federal Register CMS emphasizes that the laboratory is responsible for determining the appropriate amount of control needed and that the laboratory may find that more QC testing is required based on laboratory verification of test system performance,.	Refer to listed pages.

General Comments Regarding Nonwaived Testing (Continued)

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
CLARIFIED	Laboratories must follow manufacturer instructions for all phases of testing but those instructions must meet or exceed the minimum requirements set by the Final Rule. This holds true for QC UNLESS CMS approves a procedure (procedure control) specified in Appendix C of the State Operations Manual (CMS Pub.7).	Manufacturer's instructions for QC MUST meet the minimum requirements of the Final CLIA Rule unless exempted by a procedural control.	p. 3708 493.1256(d)(2)
CLARIFIED	In the Federal Register analysis that precedes the actual Final Rule, CMS indicates calibrators used as controls must be a different lot *and* a different concentration than the material used to calibrate the instrument. The Final Rule wording states from a different lot number than that used to establish a cut-off value or to calibrate the test system.	Puts restrictions on the use of calibrators as control materials	p. 3708 493.1256(d)(9)
RETAINED	Reagents, solutions, culture media, control materials, calibration materials and other supplies must not be used after expiration or if deteriorated or of substandard quality.		p. 3706 493.1252(d)
RETAINED ***CLARIFIED***	Before reporting patient test results, the laboratory must verify accuracy, precision, and reportable range for any test system implemented by the laboratory on or after April 24, 2003. The laboratory must verify accuracy, precision, reportable range, sensitivity, specificity and reference range for any test modified or not FDA approved and implemented by the laboratory on or after April 24, 2003. Any test in use by the laboratory before April 24, 2003 is exempt from the requirement.	.	p. 3707 493.1253 (all)

General Comments Regarding Nonwaived Testing (Continued)

	PARAPHRASED REQUIREMENT	COMMENT	REFERENCE
RETAINED REVISED	All requirements for calibration/calibration verification are retained but the Final Rule no longer requires calibrators to be traceable to a reference method or reference material of known value (Final Rule indicates if possible). Applies to all non-waived testing as of April 24, 2003.		p. 3707 493.1255(a)(2)(i)
REMOVED	Separate and specific requirements for syphilis serology, general immunology, endocrinology, toxicology, urinalysis have been removed. These now fall under the umbrella of "nonwaived" testing.	While the frequency of testing QC materials may be less than previously required, there are a number of references in the Analysis section of the Federal Register that states the laboratory should base the frequency of QC on the laboratory's verification of test system performance. The Analysis recognizes that the verification process may prove that control protocols may require more frequent testing.	Analysis and Response to Comments, Federal Register January 24, 2003