



CLINICAL LABORATORY IMPROVEMENT ADVISORY COMMITTEE (CLIAC) RECOMMENDATIONS TABLE

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
October 28-29, 2020	The Partnership between Clinical Laboratories and Public Health	Recommendation 1: CLIAC recommends that CDC identify academic and community-based/regional clinical laboratories in distinct geographic regions to diversify the Public Private Partnership Taskforce, including healthcare organizations as stakeholders, to meet changing regional and community healthcare needs.	CDC will discuss path to broaden the Public Private Partnership Taskforce Memorandum of Understanding (MOU) to include additional representation.
October 28-29, 2020	The Partnership between Clinical Laboratories and Public Health	Recommendation 2: CLIAC recommends that CDC initiate a study to explore resources needed to develop a comprehensive, extensive laboratory network (for example, enhancing the Laboratory Response Network) that balances moments and areas of excess testing capacity to meet clinical needs during a public health emergency.	CDC formed a group to begin strategic planning to identify the resources needed for a comprehensive, extensive laboratory network.
October 28-29, 2020	Laboratory Data Exchange	Recommendation 3: CLIAC recommends that the Assistant Secretary for Preparedness and Response (ASPR) coordinate a national process to obtain and allocate critical diagnostic clinical laboratory testing resources to manage a public health emergency. Key features of the process include transparency about resource allocation and clearly defined approaches for both public health and clinical laboratories. Public health officials and clinical laboratory representatives need to collaborate to provide information to guide resource decisions. Processes, decisions (with justifications), and data provided by the public health and clinical laboratories and by responsible authorities (for example, public health and elected officials) should be made public.	CLIAC sent a letter (dated March 12, 2021) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/fall-2020/CLIAC_HHSLetter_Lab_Data_Exchange_Oct2020.pdf .

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October 28-29, 2020	Laboratory Data Exchange	<p>Recommendation 4: CLIAC recommends that CDC use funding (for example, the CARES Act, the \$500 million for data surveillance and analytical infrastructure) to improve (replace or upgrade) existing laboratory information system infrastructures, such as the Association of Public Health Laboratories (APHL) Informatics Messaging Services (AIMS) platform, to centralize and standardize public health reporting (for example, data clearinghouse or health information exchange). Key attributes include:</p> <ul style="list-style-type: none"> • Interoperability, • Review of state reporting systems, • Standardization of reporting requirements of public health/clinical laboratories and/or other diagnostic services, • Technical specifications, and • Advantages and challenges of investing in a centralized reporting infrastructure. 	CDC formed a group to begin strategic planning for the process to improve existing laboratory information system infrastructures.

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October 28-29, 2020	Health Disparities	<p>Recommendation 5: CLIAC recommends that CDC develop guidelines for America’s laboratories in addressing health disparities, resulting in a national plan to champion laboratory engagement in closing gaps in care that broadly address social determinants of health. CDC should consider:</p> <ul style="list-style-type: none"> • Expansion of traditional laboratory activities (for example, insights from commonly ordered diagnostic tests). • New non-traditional roles of diagnostic and public health laboratories. • Process for how the laboratory community can best engage with clinical colleagues to close gaps in care. • Establishment of key metrics to demonstrate that laboratories are contributing to addressing health disparities across the total testing process. • Identification of potential roles for different laboratories in the United States: public health, independent, academic, and community hospital laboratories. • Establishment of a public-private partnership among federal, state, and local governments, professional societies, and care providers (for example, federally qualified healthcare centers) to ensure development and dissemination of a national plan. • A study to identify embedded inherent bias that involves current test processes and reporting. • Opportunities for pathologists and other laboratory professionals to educate, engage, and collaborate with clinical colleagues and interprofessional organizations to reconsider and rigorously validate algorithms for test result reporting that disproportionately impact diverse marginalized groups. • Test result reporting in an educationally, culturally, and linguistically appropriate manner. 	CDC formed a group to develop a strategic plan to address this recommendation.
November 6-7, 2019	Laboratory Workforce	<p>Recommendation 1: CLIAC recommends that CDC/HHS create a strategy to communicate broadly to the clinical laboratory community the Health Resources & Services Administration (HRSA) Health Careers and Opportunity Program (HCOP) resources currently available.</p>	CDC considering potential strategy to promote resources.

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November 6-7, 2019	Laboratory Workforce	Recommendation 2: CLIAC recommends that our agency partners collaborate with relevant organizations (e.g. accrediting organizations, manufacturers, professional societies, and academic institutions for higher education bodies) to increase awareness of freely available CDC laboratory training resources.	CDC has developed and implemented a tiered communication plan to promote new and updated DLS training resources to partners and learners.
November 6-7, 2019	Laboratory Workforce	Recommendation 3: CLIAC recommends that CDC create an online library of clinical laboratory educational resources for use by organizations for their own post-baccalaureate training of clinical laboratory professionals.	CDC completed an environmental scan of currently available laboratory educational resources in the domains of foundational practices, preparedness, quality and safety, and informatics and is developing a library of clinical laboratory educational resources. Next steps include developing a communication plan for sharing findings through a convenient and appropriate channel.
November 6-7, 2019	Laboratory Workforce	Recommendation 4: CLIAC recommends that CDC explore how virtual reality and simulation-based training can be used to achieve competency-based outcomes.	<p>In 2019, CDC launched a three-year pilot project to:</p> <ul style="list-style-type: none"> • Develop the first-ever CDC VR laboratory training course • Investigate if laboratory learners gain skills in addition to gaining knowledge when experiencing CDC VR training courses • Identify criteria for training goals and topics that would benefit most from incorporating VR technology to CDC distance-based learning <p>Additional details about these efforts can be found here.</p>

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November 6-7, 2019	Remote Selection, Interpretation, and Reporting of Patient Results	CLIA recommends that the CLIA Program consider that, when laboratory professionals are providing patient care through selection, interpretation, and reporting of patient results by accessing data remotely in a secure environment, they shall be deemed as performing those services at the primary site that houses the CLIA Certificate.	<p>This recommendation will be put on the agenda for the new CLIA Regulations Assessment workgroup to consider.</p> <p>During the COVID-19 pandemic CMS will allow laboratories to utilize temporary testing sites for remote review and reporting of laboratory data/slides/images as long as specific criteria are met. See the Clinical Laboratory Improvement Amendments (CLIA) Laboratory Guidance During COVID-19 Public Health Emergency memo.</p>
April 10-11, 2019	Personnel Requirements	<p>CLIA recommends that HHS consider modifying CLIA personnel requirements as follows:</p> <p>Recommendation 1: Biological science degrees such as biology, chemistry, medical technology, and clinical/medical laboratory science are acceptable degrees for laboratory personnel. Other degrees (such as those in the humanities, physical sciences, and others) may not have the requisite science coursework, and candidates for positions should be considered based on a minimum number of hours of courses with laboratory components with relevance to clinical laboratory testing (which could also come from post-degree curricular work).</p>	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 2: The degree in physical science should be removed from the CLIA regulations because it is too broad and may not include relevant laboratory science coursework.	CMS and CDC collaborating to determine path forward.

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April 10-11, 2019	Personnel Requirements	Recommendation 5: Throughout section 493, subpart M, specify that the laboratory experience described under the experience route should be “clinical laboratory experience.”	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 6: Regarding board certification, current and future HHS approved doctoral boards should be reviewed to ensure that they include a clinical component that addresses laboratory management and administration. (Current approved boards may be found at https://www.cms.gov/regulations-and-guidance/legislation/clia/certification_boards_laboratory_directors.html .)	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 7: As a prior education requirement, 20 CME or CE credit hours specifically addressing laboratory practice commensurate with laboratory director responsibilities (CFR493.1405 and 1443) should be required for both moderate and high complexity laboratory directors except those certified by the American Board of Pathology, the American Board of Osteopathic Pathology, the American Board of Dermatology, or other boards approved by HHS.	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 8: Regarding residency education, clarify 493.1443(b)(2)(i) by emphasizing that the requisite laboratory training must be “clinical” laboratory training: “have at least one year of <u>clinical</u> laboratory training during medical residency or fellowship...”	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 9: Laboratory directors should make at least two (reasonably spaced) on-site visits to each laboratory they direct per year. On-site visits are not meant to substitute for execution of director responsibilities, and are meant to supplement regular interactions between off-site directors and the laboratory (e.g. by telephone or other telepresence).	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 10: Clear documentation of laboratory director on-site visits should demonstrate that the laboratory is in continuous compliance with current laws and regulations including but not limited to the assessment of the physical environment for safe laboratory testing.	CMS and CDC collaborating to determine path forward.

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April 10-11, 2019	Personnel Requirements	Recommendation 11: Consider modifying CLIA requirements for technical consultants at 493.1411 (b)(4)(i-ii) to add the option that individuals with an associate degree in chemical, biologic, or medical technology and two years of laboratory training and experience would qualify as a technical consultant.	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Personnel Requirements	Recommendation 12: Consider modifying CLIA requirements for provider-performed microscopy procedures to add certified registered nurse anesthetist (CRNA) and clinical nurse specialist (CNS) to the definition of mid-level practitioner.	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Nontraditional Testing Workflow Models	<p>The rise of big data and machine learning have led to geographically decentralized information flows, and the necessity for extensive and novel controls (samples/data with known results). In response to these trends, CLIAC recommends that:</p> <p>Recommendation 1: HHS issue proposed regulations that reflect that the word “materials” in the CLIA-88 definition of a clinical laboratory shall include all data derived from a patient specimen, including images, genetic and protein sequence(s), –omics data, and other data.</p>	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Nontraditional Testing Workflow Models	Recommendation 2: Any site that performs an activity that involves such data (provided that the activity is related to the diagnosis, prevention, or treatment of any disease or impairment of, or the assessment of, the health of human beings) shall be considered a “laboratory,” if that site is not an extension of an existing CLIA-certified laboratory.	CMS and CDC collaborating to determine path forward.
April 10-11, 2019	Nontraditional Testing Workflow Models	Recommendation 3: HHS develop guidance to allow distributive proficiency testing (PT) models, including analytes that are currently subject to CLIA-required PT, to assure quality across the whole testing cycle.	CLIA PT carve-out for distributive testing included in regulations at § 493.801(b)(4).

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April 10-11, 2019	Next Generation Sequencing	<p>Recommendation 1: CLIAC recommends that HHS thoroughly update the CLIA regulations to address issues related to new biomarker testing and other new technologies. This update may include a new section, revising existing sections, or other alternatives. This update should take account of the reports by the Personnel Regulations, Non-Traditional Workflow Models, and NGS workgroups presented to CLIAC. For NGS, such issues include but are not limited to, e.g., the definition, role, and responsibilities of bioinformaticists; quality control, e.g. moving from a simple requirement for positive and negative controls to controls more appropriate for NGS; establishment and verification of performance specifications, including the availability and sharing of samples; proficiency testing; reporting; delivery of data to patients, e.g. FASTQ vs. BAM vs. VCF-formatted NGS files; measurement, e.g. of NGS testing volumes; and data sharing, e.g. repositories and incentives and/or requirements for contribution to them.</p>	<p>CLIAC sent a letter (dated July 9, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/addenda/cliac0419/CLIAC_Apr2019_HHSletter_NGS.pdf.</p> <p>An extended public comment session on Emerging Technologies and the Clinical Laboratory was held during the November 6-7, 2019 CLIAC meeting. Information provided via public comments was used by CLIAC to inform their deliberations and recommendations to HHS and will help focus a new CLIA Regulations Assessment CLIAC workgroup that will be convened in response to an April 2019 CLIAC recommendation that such a workgroup be charged with providing input to CLIAC in advising how CLIA might be updated.</p> <p>CDC published a Request for Information on personnel who perform bioinformatics activities in clinical and public health laboratories, storage and retention of next generation sequencing (NGS) data files, and maintenance of sequence analysis software. CDC analyzed the 16 public comments and prepared a summary report for CLIAC and the new CLIA Regulations Assessment workgroup.</p>

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April 10-11, 2019	Next Generation Sequencing	<p>Recommendation 2: CLIAC recommends creation of a new CLIAC workgroup with the charge of advising on how CLIA might specifically be updated, integrating and reflecting the reports by the Personnel Regulations, Non-Traditional Workflow Models, and NGS workgroups presented to CLIAC, ideally incorporating members from each of these groups (for continuity).</p>	<p>CMS, CDC, and FDA initiating the creation of this CLIAC workgroup.</p> <p>An extended public comment session on Emerging Technologies and the Clinical Laboratory was held during the November 6-7, 2019 CLIAC meeting. Information provided via public comments was used by CLIAC to inform their deliberations and recommendations to HHS and will help focus a CLIAC workgroup that will be convened in response to an April 2019 CLIAC recommendation that such a workgroup be charged with providing input to CLIAC in advising how CLIA might be updated.</p>

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April 10-11, 2019	Next Generation Sequencing	<p>Recommendation 3: CLIAC recommends that CMS, CDC, and FDA encourage professional societies and others (e.g. CLSI) to develop and/or update NGS guidelines. Specific fields of interest include, but are not limited to, oncology, inherited conditions, and microbiology applications of NGS. Recommended topics for guidelines include but are not limited to:</p> <ul style="list-style-type: none"> A) Revalidation of (i) analytical targets (e.g. additional genes or additional variant types); (ii) The bioinformatics pipeline (e.g. sequencing software updates, updates/changes in software in pipeline etc.) B) Data retention (e.g. file types, duration, intent) C) C) Data sharing (e.g. to patients, between organizations, between providers) 	<p>CDC encouraging professional organizations to develop and/or update guidelines through communication channels such as the Clinical Laboratory Partners Forum and Laboratory Communicators Network.</p> <p>CLIAC sent a letter (dated July 9, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/addenda/cliac0419/CLIAC_Apr2019_HHSletter_NGS.pdf.</p> <p>Starting in April 2021, CDC will convene the Next Generation Sequencing (NGS) Guidelines Forum focused on encouraging professional societies and others to develop and/or update NGS guidelines and that CMS, CDC, and FDA create guidelines or best practices related to clinical and public-health NGS.</p>

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April 10-11, 2019	Next Generation Sequencing	Recommendation 4: CLIAC recommends that CMS, CDC, and FDA create guidelines or best practices related to clinical and public health NGS. These could be based on or in partnership with guidelines already established by the government, professional societies, or other groups (e.g. CLSI).	<p>CDC will work with other agencies and professional organizations to determine what guidelines or training materials are needed for the infectious disease area.</p> <p>Starting in April 2021, CDC will convene the Next Generation Sequencing (NGS) Guidelines Forum focused on encouraging professional societies and others to develop and/or update NGS guidelines and that CMS, CDC, and FDA create guidelines or best practices related to clinical and public-health NGS.</p>
April 10-11, 2019	Next Generation Sequencing	Recommendation 5: CLIAC recommends HHS support the incorporation of standards for interoperability and data usage in clinical genetic and genomic testing and NGS across the laboratory subspecialties.	<p>CLIAC sent a letter (dated July 9, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/addenda/cliac0419/CLIAC_Apr2019_HHSletter_NGS.pdf.</p>
April 10-11, 2019	Next Generation Sequencing	Recommendation 6: CLIAC recommends expanding the CDC GeT-RM program with regard to scope and type (e.g. wet samples and data files). Focus should be on the three major categories of oncology, inherited conditions, and microbiological applications. Expansion could also include the creation/curation of NGS data sets to be used by laboratories while validating/revalidating bioinformatic pipelines.	<p>Based on CLIAC recommendations, GeT-RM has initiated a new reference material project for hereditary cancer. The feasibility of developing commutable NGS data sets is also being explored.</p>

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April 10-11, 2019	Next Generation Sequencing	Recommendation 7: CLIAC recommends CDC create and send a survey to laboratories and other organizations that perform NGS to collect data on bioinformaticians. Specifically, this survey should collect: job descriptions and educational and training requirements, as well as the availability, hiring, roles, responsibilities, salaries, and turnover of individuals who work in roles related to bioinformatics. This survey would support the CLIAC workgroup responsible for creating suggestions about personnel changes to CLIA.	CDC published a Request for Information on personnel who perform bioinformatics activities in clinical and public health laboratories, storage and retention of next generation sequencing (NGS) data files, and maintenance of sequence analysis software. CDC analyzed the 16 public comments and prepared a summary report for CLIAC and the new CLIA Regulations Assessment workgroup.
April 10-11, 2019	Next Generation Sequencing	Recommendation 8: CLIAC recommends that CDC carry out a survey of clinical laboratories to define the specific use cases for long-term storage (i.e., beyond diagnosis delivery) of NGS data, and for keeping archival software (including versioning), hardware (including e.g. tapes, drives, or disks), and environment/platform, to be able to re-run data under original settings.	CDC published a Request for Information on personnel who perform bioinformatics activities in clinical and public health laboratories, storage and retention of next generation sequencing (NGS) data files, and maintenance of sequence analysis software. CDC analyzed the 16 public comments and prepared a summary report for CLIAC and the new CLIA Regulations Assessment workgroup.

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November 7-8, 2018	Improving Diagnoses	<p>CLIAC requests the active participation of laboratory medicine in the workings of the Federal Interagency Workgroup on Improving Diagnostic Safety and Quality. Diagnostic errors related to the total testing process lead to over 50,000 deaths each year. Inspired by the success of the CMS' role in antimicrobial resistance stewardship, CLIAC recommends that healthcare centers be required (for example by CMS, or as suggested by the Federal Interagency Workgroup on Improving Diagnostic Safety and Quality) to have an independent multidisciplinary diagnostic improvement program that includes laboratory professionals as co-equal stakeholders. The program should focus on the total testing process (including but not limited to the traditional pre-analytical, analytical, and post-analytical steps) and emphasize the cognitive elements of test selection and ordering, results in interpretation, and communication (both to the care team and patients), to promote safety, improve patient outcomes, and decrease diagnostic errors.</p>	<p>CLIAC sent a letter (dated February 11, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/fall-2018/CLIAC_Nov2018_HHSletter_ImprovingDiagnoses.pdf.</p> <p>CDC has two representatives – one from the Division of Laboratory Systems and one from the Division of Healthcare Quality Promotion – on the Federal Interagency Workgroup on Improving Diagnostic Safety and Quality. These CDC representatives promote the importance of laboratory medicine to diagnostic safety and quality.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 7-8, 2018	Improving Diagnoses	<p>CLIAC recommends that the Federal Interagency Workgroup on Improving Diagnostic Safety and Quality develop and/or centralize, with an emphasis on the cognitive processes surrounding test ordering, interpretation, and communication and the actions taken as a result thereof:</p> <ul style="list-style-type: none"> • High-yield approaches to monitoring for diagnostic error • Effective best practices and research priorities for reducing diagnostic error • High-impact information-management processes related to decision support for improving diagnostic performance • Recommendations for incentivizing diagnostic performance improvement • Develop resources for improving diagnostic performance analogous to those developed for antibiotic stewardship (including through communicating with e.g., the National Quality Forum) <p>Quantify the “total value” of laboratory diagnostics (including delineating the stakeholders, what budgets, and what units other than dollars, e.g., quality-adjusted life years, are saved or expended based on correct or incorrect decisions involving the total laboratory process).</p>	<p>CLIAC sent a letter (dated February 11, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/fall-2018/CLIAC_Nov2018_HHSletter_ImprovingDiagnoses.pdf.</p> <p>CDC has two representatives – one from the Division of Laboratory Systems and one from the Division of Healthcare Quality Promotion – on the Federal Interagency Workgroup on Improving Diagnostic Safety and Quality. These CDC representatives promote the importance of laboratory medicine to diagnostic safety and quality.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 7-8, 2018	Personnel Requirements	<p>CLIAC recommends the formation of a working group to advise the Committee on how to respond to the personnel questions asked by CMS. In particular, the working group should address: (1) the educational requirements necessary for laboratory personnel, including possible use of competency exams/other key performance indicators, and leveraging the cumulative experience of existing accreditation bodies; and (2) the following issues related to requirements for clinical laboratory directors, supervisory positions, and technical consultants: supervisory experience for laboratory directors and technical supervisors, documentation/verification of training, experience, and supervisory activities, qualifications “equivalent to board certification,” continuing medical education requirements as a function of degree, on-site requirements, and other clinical laboratory experience. CLIAC further recommends that CMS report to the workgroup and to CLIAC as to the breakdown of specific deficiencies related to laboratory directors, to assist the Committee in providing advice regarding the role/qualifications of laboratory directors.</p>	<p>The CLIA Personnel Workgroup was formed and met on February 26-27, 2019. The workgroup report was presented to CLIAC during the April 10-11, 2019 CLIAC meeting resulting in twelve CLIAC recommendations. The April 2019 meeting summary including the workgroup report and presentation can be found at https://www.cdc.gov/cliac/docs/summary/cliac0419_summary.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 7-8, 2018	Role of the Laboratory in the Opioid Crisis	<p>CLIAC recommends that the CDC, CMS, and FDA convene a blue-ribbon panel (e.g., with input from the Council for State and Territorial Epidemiologists) on laboratory engagement in controlling the opioid crisis. The panel should address the following, with emphasis on standardization of scope of testing (list of analytes), different methodologies, lack of clear reference laboratory system, inadequate capacity (especially in the forensic area), and inadequate capability to test for novel analogs ("designer opioids"):</p> <ol style="list-style-type: none"> 1. How can information on the clinical and analytic properties of presumptive and definitive (confirmatory) drug testing methods be best communicated with providers who order and utilize these tests? 2. How can a list of analytes (drugs or metabolites) be standardized (e.g., nationally vs. by region), especially given the rapid change in usage patterns? 3. What incentives and regulatory approaches may improve access to definitive (confirmatory) drug testing? 4. What approaches to laboratory-based surveillance and reporting, leveraging preexisting systems for reporting public health concerns of communicable diseases, cancer, heavy metals, and HIV/AIDS (e.g., Electronic Clinical Laboratory Reporting System, New York Department of Health), might improve our ability to monitor and address the epidemic of drug misuse? 5. Investigate the feasibility for Departments of Health to require clinical laboratories to report drugs-of-abuse toxicology results (a reference laboratory system). 	<p>CLIAC sent a letter (dated February 11, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/fall-2018/CLIAC_Nov2018_HHSletter_OpioidCrisis.pdf.</p> <p>The Association of Public Health Laboratories will provide an update on their Opioids Biosurveillance Task Force during the November 6-7, 2019 CLIAC meeting.</p>
November 7-8, 2018	Antibiotic Resistance	<p>In support of antibiotic stewardship efforts by the president's advisory council and others, CLIAC recommends that CMS require that clinical laboratories, in a timely fashion (e.g. within at most one year) and using reasonable effort, convert to contemporary antimicrobial resistance breakpoints in accordance with manufacturer's instructions.</p>	<p>CLIAC sent a letter (dated February 20, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/fall-2018/CLIAC_Nov2018_HHSletter_AntibioticResistance.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 7-8, 2018	Antibiotic Resistance	Recognizing the urgency imposed by the pace of emerging antimicrobial resistance, CLIAC recommends that the FDA update existing guidance to prioritize manufacturers' timely integration of updated antimicrobial susceptibility breakpoints.	CLIAC sent a letter (dated February 20, 2019) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://www.cdc.gov/cliac/docs/fall-2018/CLIAC_Nov2018_HHSletter_AntibioticResistance.pdf .
April 10-11, 2018	Nontraditional Testing	<p>CLIAC recommends the development of a workgroup to address non-traditional testing models. The workgroup will provide input to CLIAC for consideration in making recommendations to HHS regarding the need for optimal oversight by CLIA and best methods for such oversight in non-traditional testing models such as:</p> <ul style="list-style-type: none"> • Telemedicine (i.e., remote review/interpretation/reporting of laboratory results, pathology, etc.) • Bioinformatics facilities (ex. Cloud-based programming) • NGS testing, sequencing • Toxicology 	The Nontraditional Testing Workflow Model Workgroup was formed and met December 6, 2018. The workgroup report was presented to CLIAC during the April 10-11, 2019 CLIAC meeting resulting in three CLIAC recommendations. The April 2019 meeting summary including the workgroup report and presentation can be found at https://www.cdc.gov/cliac/docs/summary/cliac0419_summary.pdf .
April 10-11, 2018	Next Generation Sequencing	<p>CLIAC recommends the formation of a next-generation sequencing workgroup to provide input to CLIAC for consideration in developing recommendations to CDC, CMS, and FDA and to prioritize regulatory gaps for assuring the quality of next generation sequencing in clinical laboratory settings.</p> <p>Proposed Workgroup Tasks:</p> <ul style="list-style-type: none"> • Identify challenges in applying the existing regulatory framework • Identify challenges and gaps in guidance • Consider and suggest strategies to address the identified gaps and challenges • Consider and suggest strategies for assuring workforce competency 	The Next Generation Sequencing Workgroup was formed and met on January 16-17, 2019. The workgroup report was presented to CLIAC during the April 10-11, 2019 CLIAC meeting resulting in eight CLIAC recommendations. The April 2019 meeting summary including the workgroup report and presentation can be found at https://www.cdc.gov/cliac/docs/summary/cliac0419_summary.pdf

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 10-11, 2018	Laboratory Workforce	<p>CLIAC recommends that CDC, CMS, and FDA prioritize approaches to address the 20-year shortfall of trained laboratory professionals and report back to CLIAC, including but not limited to:</p> <ul style="list-style-type: none"> • Create incentives for clinical affiliate sites to allow more mentoring and training of laboratory students (similar to the Graduate Medical Education model). • Develop a crosswalk for trained veterans to accelerate entry into the laboratory professional field and qualify under CLIA regulations. • Create or evaluate existing career-ladder models developed by laboratory organizations and develop strategies to implement them. • Develop methods to demonstrate the economic impact of laboratory testing, possibly using return on investment (ROI) and/or cost-savings and avoidance. • Create strategies for increasing public awareness of clinical laboratory science as a career. 	<p>CLIAC sent a letter (dated July 24, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentation/pdf/Recommendations/CLIA_C_Apr2018_HHSletter_Workforce_Signed.pdf.</p>
April 10-11, 2018	Laboratory Workforce	<p>CLIAC recommends that HHS:</p> <ul style="list-style-type: none"> • Issue a recommendation to the U.S. Department of Education to include laboratory science professions in science, technology, engineering, and mathematics programming. • Issue a recommendation to request that the Health Resources and Services Administration include Title VII funding to authorize resources to educational programs for laboratory professions experiencing a workforce shortage crisis. • Create a plan and appropriate funding for a program within the Public Health Service Act to ensure training for citizens seeking to enter the clinical laboratory workforce. 	<p>CLIAC sent a letter (dated July 24, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentation/pdf/Recommendations/CLIA_C_Apr2018_HHSletter_Workforce_Signed.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 10-11, 2018	Laboratory Workforce	<p>CLIAC strongly recommends that HHS and/or its agencies fund a study of the opportunity costs of the two decades of reduction in the laboratory workforce.</p> <p>We suggest proceeding along the lines of past government funded/sponsored/written reports, such as the number of deaths due to medical errors, to provide data, context, and guidance to the public and the healthcare establishment regarding the likely effect of continued pressure on the laboratory workforce (in terms of numbers, training, and compensation).</p> <p>We specifically recommend:</p> <ol style="list-style-type: none"> 1) a careful analysis of the role of technology and other efficiencies (perhaps reminiscent of changes to the U.S. agriculture workforce over the past century) vs. contraction of purview and provision of care (for example, resources insufficient to provide the best test with the best turnaround time, or to make improvements that would otherwise have been possible to the full laboratory cycle, as opposed to just the pre-to-post-analytical phases). 2) calculations and analysis of the ROI on laboratory personnel, in useful units (e.g., dollars, quality-adjusted life years, or errors avoided) that can be used as a landmark reference for the public, healthcare industry, and potential future members of the laboratory workforce. 3) that HHS create a workgroup or fund the process to develop a simple, quantitative method, considering current laboratory methodologies and utilization patterns, that any clinical laboratory can use to demonstrate the impact of the laboratory on the healthcare system. This method needs to be able to demonstrate the economic impact of laboratory testing, possibly using ROI and/or cost-savings and avoidance. It should also address the impact on quality of care and timeliness of results. 	<p>CLIAC sent a letter (dated July 24, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentation/pdf/Recommendations/CLIA_C_Apr2018_HHSletter_Workforce_Signed.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 10-11, 2018	Laboratory Interoperability	<p>CLIAC recommends that FDA and CMS create and implement guidelines for in vitro diagnostic device and laboratory information system manufacturers which describe specifications for interoperability and require the use of emerging standards such as Laboratory Analytical Workflow Profile and Logical Observation Identifiers Names and Codes for In Vitro Diagnostics.</p>	<p>CLIAC sent a letter (dated July 24, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/CLIA_C_Apr2018_HHSletter_Interoperability_Signed.pdf.</p> <p>In June 2018, FDA published final guidance “Logical Observation Identifiers Names and Codes for In Vitro Diagnostic Tests - <i>Guidance for Industry and Food and Drug Administration Staff</i>” available at https://www.fda.gov/regulatory-information/search-fda-guidance-documents/logical-observation-identifiers-names-and-codes-vitro-diagnostic-tests.</p> <p>FDA, CMS, and CDC working in collaboration with the Clinical and Laboratory Standards Institute to develop interoperability guidelines.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 10-11, 2018	Laboratory Interoperability	<p>The Committee recommends that the CDC consult with the Office of the National Coordinator for Health Information Technology to identify the appropriate agency to develop a report to:</p> <ol style="list-style-type: none"> 1. Quantitatively define "interoperability" at each of the following levels: device, department, institution, health-care system, and nationally (e.g. "the U.S. is 12% interoperable"). 2. Determine the yearly dollar spending on interoperability, and who pays for it (manufacturers, hospitals, insurers). 3. Determine the costs in terms of adverse outcomes of a lack of interoperability, which is presumably related to the appreciable cost of diagnostic error. 4. Determine the return-on-investment for achieving (degrees of) interoperability; e.g., how much in terms of health, lives, and/or money is saved by a device/department/institution/system/the country achieving a certain level of interoperability. 5. Delineate the barriers to achieving interoperability (in terms of regulation, financial resources, human capital, conflicting values/incentives among stakeholders, access to data, and adoption). 	<p>CLIAC sent a letter (dated July 24, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/CLIA_C_Apr2018_HHSletter_Interoperability_Signed.pdf.</p> <p>CDC consulted with the Office of the National Coordinator for Health Information Technology (ONC). Data are not currently available to develop such a report.</p>
November 1-2, 2017	Pathologist as an Integral Team Member	<p><u>Pathologist as an Integral Team Member</u></p> <p>HHS should encourage the development and evaluation of team-based care innovations that include CLIA covered specialties (and engage patients) in reducing diagnostic error.</p> <ul style="list-style-type: none"> • Areas of special interest could include consultations by laboratory professionals, e.g. pathologists' work in advising ordering clinicians on the selection, use, and interpretation of diagnostic testing for specific patients. • Evaluation should include patient and provider outcomes (including satisfaction), and health system outcomes (e.g., costs) including innovation's implementation related challenges and opportunities. 	<p>CLIAC sent a letter (dated February 6, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS) that included this recommendation. HHS response was sent on March 23, 2016. The letter and response can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/CLIA_C_Nov2017_HHSletter_Interoperability.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 1-2, 2017	Laboratory Interoperability	<p><u>Interoperability</u> CLIAC recommends that HHS create a process for standards utilization field studies across a wide range of clinical laboratories (varying size and complexity) to:</p> <ol style="list-style-type: none"> 1. Better understand the nuances, specificity, and compatibility of sharing LOINC or other standard codes, <ol style="list-style-type: none"> a. on both order-and result-side implementation, and b. in special cases (radiology, clinical findings, anatomic pathology, molecular diagnostics, etc.). 2. Identify areas in which a combination(s) of standards is needed to realize the level of granularity and semantic interoperability necessary to achieve the Institute of Medicine (IOM) goals. 	<p>CLIAC sent a letter (dated February 6, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS) that included this recommendation. HHS response was sent on March 23, 2016. The letter and response can be found at https://ftp.cdc.gov/pub/CLIA C_Nov2017_HHSLetter_Interoperability.pdf.</p> <p>The Systemic Harmonization & Interoperability Enhancement for Lab Data (SHIELD) program received funds from the Assistant Secretary for Planning and Evaluation (ASPE) through Patient-Centered Outcomes Research Trust Fund (PCORTF) to:</p> <ul style="list-style-type: none"> • Develop a guidance document (in collaboration with Regenstrief Institute) to aid manufacturers and laboratories in selection of the best LOINC codes. The “Guide for Using LOINC Microbiology Terms” was published in 2018 available at https://loinc.org/guides/micro/. • Pilot implementation of SHIELD processes and standards in healthcare provider institutions and registries. • Assess value of activities from implementation pilots, publication of findings and public outreach.

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 1-2, 2017	Culture-Independent Diagnostic Tests	<p>In clinical microbiology, culture-independent diagnostic tests (CIDTs) are rapidly supplanting culture-based tests, but cultures are indispensable for surveillance and outbreak prevention, which are both cost-effective and vital to public health and national security.</p> <p>CLIAC recommends that CDC urgently convene a cross-agency coordinating group to assess the impact of CIDTs on public health surveillance, and to recommend impactful solutions that are brought to the attention of agency and government leaders.</p>	<p>CDC co-sponsored the “2018 Forum on Culture-Independent Diagnostics: Charting a Path for Public Health” with the Pew Charitable Trusts, the Association of Public Health Laboratories (APHL), the Council of State and Territorial Epidemiologists (CSTE), and The Ohio State University. This forum was held on May 8-9, 2018 at The Pew Charitable Trusts’ Washington, DC office.</p> <p>CLIAC sent a letter (dated February 6, 2018) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. HHS response was sent on March 23, 2016. The letter and response can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/CLIA_C_Nov2017_HHSletter_CIDTs.pdf.</p>
November 2-3, 2016	Biosafety	<p>CLIAC proposes that the voluntary Laboratory-Associated Incident Reporting System (proposed by the CDC Blue Ribbon Panel recommendation in 2012) protect the privacy and confidentiality of reporting individual(s) and larger entities, e.g., via anonymity. The system should borrow from the principles of existing event-reporting systems and focus on incidents, near-misses, and mitigation measures that affect the safety of laboratory professionals. Finally, it should foster a non-punitive culture for reporting.</p>	<p>CLIAC sent a letter (dated November 29, 2016) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Nov2016_HHSletter_BioSafety.pdf.</p> <p>The Laboratory-Associated Incident Reporting System project transitioned to HHS as part of the deliverables specified in the Federal Experts Security Advisory Panel (FESAP) https://www.phe.gov/Preparedness/legal/boards/fesap/Pages/default.aspx.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 2-3, 2016	Autopsy	<p>CLIAC supports the IOM recommendation that Department of Health and Human Services (HHS) provide funding for a designated subset of health care systems to conduct routine postmortem examinations on appropriately defined categories of patient deaths (for example, those listed in the College of American Pathologists Guidelines for Non-Forensic Autopsies). These funds should be directly linked to proposals for data acquisition, including standardization of autopsy procedures and reporting (including death-certificates), with the expressed goal of understanding the value of autopsies for improving individual and health system outcomes.</p>	<p>CLIAC sent a letter (dated November 29, 2016) to the Secretary of the U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Nov2016_HHSletter_IOMRecommendation.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 2-3, 2016	Communication of Test Results	<p><u>Recommendation 1a</u> CMS should convene a multidisciplinary group* to</p> <ul style="list-style-type: none"> – Generate a report describing a process for health care institutions to improve safe communication and follow-up of diagnostic test results to providers and/or patients with clear guidelines on timelines for communicating those results; and – Provide an implementation and evaluation plan for the process. <p>Examples of guidance for the report include:</p> <ul style="list-style-type: none"> – The 2015 VHA policy on communicating test results, http://www.va.gov/vhapublications/ViewPublication.asp?pubID=3148. – A similar project was the CDC’s <i>Core Elements of Hospital Antibiotic Stewardship Programs</i>, http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html. <p>*May include but is not limited to, representatives from CMS, FDA, CDC, diagnostic industry representatives, relevant approved accrediting organizations, informaticians, human factors engineers, laboratory directors/professionals, clinician end-users, patient/consumer representatives, health IT developers/vendors, and other relevant professional organizations.</p> <p><u>Recommendation 1b</u> CMS should recommend health care institutions create an interdisciplinary team comprised of clinical and diagnostic health care professionals, health IT, and other safety/human factors experts. This team should conduct periodic institutional self-assessments to address areas of risk and improvement related to safe communication and follow-up of diagnostic results.</p> <p>Examples of guidance include:</p> <ul style="list-style-type: none"> – <i>Test Results Reporting & Follow-up</i> ONC SAFER Guide, https://www.healthit.gov/sites/default/files/safer_test_results_ing.pdf. – Additional guidance could be obtained from the report in Recommendation 1a. 	<p>CLIAC sent a letter (dated November 29, 2016) to the Secretary, The U.S. Department of Health and Human Services (HHS), that included this recommendation. The letter can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Nov2016_HHSletter_IOMRecommendation.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 13-24, 2016	Laboratory Interoperability	CLIAC requests that the Office of the National Coordinator for Health Information Technology (ONC) Standards and Policy Committees each include a pathology informatician (pathologist with expertise in clinical informatics) as a committee member.	CLIAC sent a letter (dated May 9, 2016) to the Secretary, The U.S. Department of Health and Human Services (HHS), that included this recommendation. HHS response was sent on June 15, 2016. The letter and response can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Apr_2016_HHS_Interoperability.pdf .
April 13-14, 2016	Laboratory Interoperability	To facilitate wider uptake of standards for laboratory interoperability, HHS should endorse and stimulate adoption of an implementation guide/s for laboratory results reporting (e.g., The EHR-Lab Interoperability and Connectivity Specification (ELINCS) for orders available at http://www.chcf.org/projects/2009/elincs); and successful pilots that arise from the S&I framework effort (http://wiki.siframework.org/Laboratory+Orders+Interface+Initiative)	CLIAC sent a letter (dated May 9, 2016) to the Secretary, HHS, that included this recommendation. HHS response was sent on June 15, 2016. The letter and response can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Apr_2016_HHS_Interoperability.pdf .

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 13-14, 2016	Biosafety	<p>CLIAC considers the matter of biosafety in clinical laboratories as an urgent, unmet, national need. We, therefore, recommend that CDC convene a multidisciplinary task force to develop a biosafety strategy for clinical laboratories that:</p> <ul style="list-style-type: none"> - Includes stakeholders from all areas of clinical laboratories (including professional societies), diagnostic instrumentation industry, other relevant Federal agencies, and patient/clinician representatives. - Recommends areas requiring further research in clinical laboratory safety. - Develops tools, templates, and guidelines for risk assessment in all areas of the clinical laboratories, both for routine operations and emerging infectious diseases. - Publishes interim materials and progress reports broadly, and specifically to CLIAC, to inform and to solicit input from the clinical laboratory and broader medical communities. - Describes cultural, regulatory, measurement, and evaluation strategies for goal achievement in biosafety. - Develops a framework for the implementation of good clinical practices that also addresses transparent evaluation and monitoring of biosafety practices. 	<p>CDC updated CLIAC during the November 1-2, 2016 meeting. An update to progress from November 2016 until September 2019 can be found at https://www.cdc.gov/cliac/docs/fall-2019/CLIAC-April-13-2016-Biosafety-Update_09232019.pdf.</p>
November 18-19, 2015	Procedural Changes	<ul style="list-style-type: none"> • CDC should review the process by which CLIAC creates, reviews, and edits official committee recommendations to allow a public forum for shared development and drafting of proposed recommendations prior to the meeting to facilitate more effective committee discussion. 	<p>CDC's Committee Management Office and General Counsel discussed the recommendation process at the April 13-14, 2016 CLIAC meeting.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 18-19, 2015	Prenatal Testing	<ul style="list-style-type: none"> • HHS and CDC should support the development of Non-invasive prenatal testing (NIPT)-related enduring educational materials accessible to patients and health care providers. In order to support effective patient care decisions, these materials should include simple language and visual graphics to effectively convey information about risks, benefits, and limitations of different types of prenatal testing. • HHS should require that ordering providers requesting non-invasive prenatal screening tests (of cell-free fetal DNA) should perform and document a pre-test discussion to inform the patient of risks, benefits, and limitations. • HHS should recommend labs performing NIPT to disclose information regarding test limitations and positive predictive values (likelihood that the fetus has a genetic condition) that is directly comparable to conventional techniques (e.g., by maternal age) while reporting results as well as risk interpretation and appropriate indications for confirmatory diagnostic testing. 	<p>CLIAC sent a letter (dated January 4, 2016) to the Secretary, HHS, that included this recommendation. HHS response was sent on March 7, 2016. CLIAC was provided the HHS letter and response on April 13, 2016. The letter and response can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Nov_2015_HHS_NIPT.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 18-19, 2015	Electronic Health Record (EHR)	<p>HHS should ensure the following next steps:</p> <ul style="list-style-type: none"> • EHR content display related to laboratory data (including graphs) should be standardized such that all CLIA-required test report elements are on every laboratory display/graph. • National Institute of Standards and Technology (NIST) should create use cases for testing transmission and display of laboratory data in the pre- and post-implementation stages of EHR use in order to maintain semantic interoperability in various laboratory (clinical/anatomic pathology) settings. Use cases should start at the laboratory system and involve sending data across the interface for display in multiple EHRs. This would test the interoperability of comments, units, reference ranges, etc. (sometimes the reference ranges in the EHR are different than in the laboratory information system). • Consider the incorporation of CLIA use cases in the next certification cycle. • The Centers for Medicare & Medicaid Services (CMS) should consider identifying activities considered as ‘information blocking’ and place multifaceted strategies to discourage such activities. For example, incentives could be built for offsetting the current high fees for laboratory/EHR interfaces. 	<p>CLIAC sent a letter (dated January 4, 2016) to the Secretary, HHS, that included this recommendation. HHS response was sent on March 7, 2016. CLIAC was provided the HHS letter and response on April 13, 2016. The letter and response can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Nov_2015_HHS_Interoperability.pdf.</p>
April 15-16, 2015	Safety	<p>With regard to emerging infections, HHS should:</p> <ol style="list-style-type: none"> 1. Provide oversight that ensures assessment of the safety and decontamination of laboratory instrumentation by manufacturers. 2. Ensure that biosafety training and assessment is required of all CLIA-certified laboratories, including personnel responsible for the preanalytical, analytical, and postanalytical phases of testing. 3. Ensure oversight, input, and resources into studies evaluating the safety of all laboratory practices, instrument testing, etc., so that studies are sound, robust, evidence-based, and applicable. 4. Develop a process for investigating and reporting laboratory-acquired infections. 	<p>CLIAC sent a letter (dated May 6, 2015) to the Secretary, HHS, that included this recommendation. HHS response was sent to CLIAC on August 5, 2015. The letter and response can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Apr_2015_HSS_Biosafety.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
April 15-16, 2015	Electronic Health Record (EHR)	<p>HHS should convene a multidisciplinary stakeholder group that:</p> <ul style="list-style-type: none"> • Includes, but is not limited to, representatives from ONC, CMS, FDA, CDC, industry representatives, health IT developers/vendors, all CLIA approved accrediting organizations, informaticians, lab directors/professionals, provider end-users, patient/consumer representatives, and other relevant professional organizations • Proposes a framework for achieving safe and effective lab interoperability (both system and patient-facing) that encourages innovation and defines how to operationalize interoperability (and related deliverables) with detailed use cases • Provides both short term next steps and long-term goals with definable, measurable actions and outline who is responsible for these actions • Puts into place robust measurement and evaluation strategies for goal achievement. 	<p>CLIAC sent a letter (dated May 6, 2015) to the Secretary, HHS, that included this recommendation. HHS response was sent on July 24, 2015. CLIAC was provided the HHS letter and response on November 5, 2015. The letter and response can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Apr_2015_HHS_Interoperability.pdf.</p>
November 5-6, 2014	Histocompatibility	<p>CMS should explore:</p> <ol style="list-style-type: none"> a. Regulatory changes or guidance(s) that would allow virtual crossmatching to replace physical crossmatching as a pre-requisite for an organ transplant; b. Appropriate criteria and decision algorithms, based on CLIAC deliberation of the Virtual Crossmatch Workgroup input, under which virtual crossmatching would be an appropriate substitute for physical crossmatching. The determination of appropriate criteria and decision algorithms should involve a process that includes an open comment period. 	<p>CMS has solicited public comment through a published a Request for Information: Revisions to Personnel Regulations, Proficiency Testing Referral, Histocompatibility Regulations and Fee Regulations Under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) available at https://www.gpo.gov/fdsys/pkg/FR-2018-01-09/pdf/2017-27887.pdf.</p>
November 5-6, 2014	Waived Testing	<p>CMS should revisit the A19 request to open up the CLIA law to allow changes to the waived testing requirements and provide a description of the details of the A19 request at the next CLIAC meeting.</p>	<p>CMS reported on this during April 15-16, 2015 CLIAC meeting.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
November 5-6, 2014	Waived Testing	<p>HHS should facilitate the development of a non-punitive and non-regulatory, self-assessment, checklist-type tool and recommend it for biennial use by all Certificate of Waiver testing sites. It could also be used prior to or at the time a site first applies for a CLIA Certificate.</p> <ul style="list-style-type: none"> • Items on the checklist should include recommended practices based on the “Ready? Set? Test!” booklet and should address known problem areas of importance (e.g., off-label use of waived tests). • The checklist could also assess whether the Certificate of Waiver site reports test system performance problems to the FDA. • Certificate of Waiver testing sites should be encouraged to keep copies of their completed assessments on file to be validated during CMS site visits and/or the assessments could be reported to CMS through an online portal. 	<p>Self-assessment checklist based on Ready? Set? Test! recommended practices was completed and is available at https://www.cdc.gov/labquality/waived-tests.html.</p>
August 21-22, 2013	Cytology	<p>Clinical Laboratory Improvement Advisory Committee (CLIAC) endorses the use of the College of American Pathologists (CAP) Guidelines as a model for validation of whole slide imaging systems for clinical use.</p>	<p>No action required.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
August 29-30, 2012	Electronic Health Record (EHR)	<p>CLIAC recognizes that serious patient safety risks can arise from errors in the order entry, transmission, display, and interpretation of laboratory data in EHRs. Display and use of non-numerical laboratory information is an under-appreciated, critical issue. Interoperability with LIS as well as correct transmission of data across multiple interfaces is also critical. The laboratory community can provide important input and solutions to these challenging problems. CLIAC makes the following recommendations:</p> <ol style="list-style-type: none"> 1. Laboratory experts with experience in hospital, ambulatory or public health settings should be members of key ONC advisory committees and other agency groups that are setting standards and policies for laboratory information in EHRs. 2. Provider usability is an important strategy for mitigation of these patient safety risks. Further work in this area should be supported. 3. A national system for reporting EHR laboratory-related safety events and near misses should be established to clearly define the prevalence, understand the underlying causes, and stimulate the design of broad-based solutions. 4. A catalog of various solutions for laboratory data should be created using work that has already been done and considering areas of expertise [e.g., human factors] that may not have been previously engaged. 	<p>CLIAC sent a letter (dated September 26, 2012) to the Secretary, HHS, that included this recommendation. HHS reported to CLIAC on steps being taken in response to the recommendation on August 22, 2013. The letter can be found at http://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/Recommendations/Aug_2012_HHS_EHR.pdf.</p>
February 14, 2012	Cytology	<ol style="list-style-type: none"> 1) CLIAC supports the use of data from operational studies, such as those presented to determine if the maximum workload limit using semi-automated screening instruments is appropriate. To discourage the use of maximum workload limits as productivity expectations, CLIAC recommends that standardized criteria be developed for use in determining workload limits for each individual performing screening. 2) Lowering the workload limits for screening Pap smears using a semi-automated device may result in improving the quality of testing. However, it could also lead to increased turnaround time and costs for obtaining test results and could have implications for access to testing. 	<p>CDC, CMS, and FDA developed a study plan with input from a cytology workgroup. In 2013, CDC funded a contract to collect workload data. Project and data analysis completed. CLIAC provided an update during the November 2-3, 2016 meeting. The meeting summary can be found at https://ftp.cdc.gov/pub/CLIAC_meeting_presentations/pdf/CLIAC_Summary/cliac11_16_summary.pdf.</p>

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
August 31-September 1, 2011	Miscellaneous	Implement a workgroup to outline the scope of issues related to communication of laboratory testing information and propose approaches to address these issues for discussion by CLIAC.	The Communication in Informatics workgroup met July 11-12, 2012 and reported to CLIAC on August 29, 2012. Communication issues, in general, continue to be an ongoing topic of CLIAC discussions.
September 1-2, 2010	Cytology	CMS should analyze the cytology proficiency testing (PT) data directly in light of concerns expressed by the Committee on failure rates, reasons for failure, and trends and should present to CLIAC at the next meeting along with an analysis of the cytology NPRM and how it addresses these concerns.	At the March 2-3, 2011 CLIAC meeting, CMS presented their current data on failure trends from 2005-2010 and withdrew the proposed rule on April 8, 2011.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
September 1-2, 2010	Proficiency Testing	<ol style="list-style-type: none"> 1. Analyte Inclusion/Prioritization and Grading Criteria <ol style="list-style-type: none"> a. There should be a defined list of analytes for which proficiency testing (PT) is required. If legally possible, those analytes should be separate from, but linked to, regulations, allowing the list to be more flexible. b. Inclusion Criteria for determining required PT analytes should be scientifically based. c. Factors to be considered for adding required PT analytes to subpart I of the CLIA regulations should include: <ol style="list-style-type: none"> i. Whether PT exists and the material is available ii. The volume of testing for an analyte iii. Clinical relevance iv. Cost of adding an analyte d. Criteria used to assess the clinical relevance of an analyte should include consideration of <ol style="list-style-type: none"> i. Testing when a treatment decision is made solely on the result of that test ii. Tests that have critical values associated, i.e., results that require immediate communication with clinicians due to their life-threatening nature or serious risk to the patient iii. National practice guidelines that include testing the analyte e. There should be a two-year phase-in period for implementation of required PT after adding analytes to the list. f. The required number of PT challenges and frequency (five challenges, three times per year) should not be changed. g. Ideally, every analyte should be assessed with traditional PT. If PT is not available, however, laboratories should continue to use alternative proficiency assessment as now required by CLIA. 	<p>Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019.</p> <p>https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to</p>

DATE RECOMMENDED	CATEGORY	CLIA/CAP RECOMMENDATION	STATUS
September 1-2, 2010	Proficiency Testing	Criteria for Acceptable Performance – 2. Grading criteria should be periodically reviewed for all analytes that require PT for continued clinical relevance or when other relevant information becomes available.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Criteria for Acceptable Performance – 3. Information gathered during the phase-in process for newly required PT should be used to scientifically establish grading criteria.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Criteria for Acceptable Performance – 4. An indeterminate category should be considered an acceptable answer for certain analytes when applicable.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to

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September 1-2, 2010	Proficiency Testing	Criteria for Acceptable Performance – 5. Peer grouping should be retained when appropriate as a component of the grading criteria.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to .
September 1-2, 2010	Proficiency Testing	Criteria for Acceptable Performance – 6. Definition of the term “Peer Group” for possible inclusion in the regulations: A group of laboratories whose testing process utilizes similar instruments, methodologies, and/or reagent systems.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Criteria for Acceptable Performance – 7. All vendors involved in the production of PT material need to work to minimize matrix effects.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to

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September 1-2, 2010	Proficiency Testing	<p>Criteria for Acceptable Performance –</p> <p>8. Designations for PT samples being ungradable (reason codes) should be clarified to distinguish between situations when there are too few participants to grade and a sufficient number of participants, but the consensus is not reached.</p>	<p>Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019.</p> <p>https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to</p>
September 1-2, 2010	Proficiency Testing	<p>Microbiology PT –</p> <p>9. A system for categorizing levels of service must be maintained in the regulations to help laboratories determine what PT they need to perform and assist surveyors in monitoring PT performance and patient testing.</p>	<p>Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019.</p> <p>https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to</p>
September 1-2, 2010	Proficiency Testing	<p>Microbiology PT –</p> <p>10. Laboratories need to declare their patient reporting practices for organisms included in each PT challenge. However, PT programs may only gather this information as it is the inspecting agency's responsibility to review and take action if necessary.</p>	<p>Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019.</p> <p>https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to</p>

DATE RECOMMENDED	CATEGORY	CLIA/CAP RECOMMENDATION	STATUS
September 1-2, 2010	Proficiency Testing	Microbiology PT – 11. The regulations need to include for all microbiology subspecialties, as applicable, stain(s), susceptibility and resistance testing, antigen and/or toxin detection, and microbial identification or detection.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Microbiology PT – 12. Require PT for a generic list of organisms in each subspecialty. For example, in bacteriology, the groups listed should include Gram-negative bacilli, Gram-positive bacilli, Gram-negative cocci, and Gram-positive cocci.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Microbiology PT – 13. For PT, patient histories and source should be provided, however this information should not preclude the laboratory from performing PT.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to

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September 1-2, 2010	Proficiency Testing	Microbiology PT – 14. PT results for Gram stains should include both stain reaction and morphology.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Microbiology PT – 15. Lower the mixed culture requirement from 50% to 25% for PT challenges of both sample types (those that require laboratories to report only the principal pathogen and those that require laboratories to report all organisms present).	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Microbiology PT – 16. Required PT for antimicrobial susceptibility and/or resistance testing should be increased to two challenges per event for a total of six challenges per year in bacteriology and should include one gram-positive and one gram-negative organism in each event.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
September 1-2, 2010	Proficiency Testing	Microbiology PT – 17. PT should be required for laboratories that perform susceptibility and/or resistance testing in all microbiology subspecialties. It should include two challenges per event for a total of six challenges per year and should include resistant organisms.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Microbiology PT – 18. PT for direct antigen testing should be required for all subspecialties.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	Microbiology PT – 19. Retain the five required challenges per event and 80% required consensus for grading.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to

DATE RECOMMENDED	CATEGORY	CLIA/CDC RECOMMENDATION	STATUS
September 1-2, 2010	Proficiency Testing	Microbiology PT – 20. All PT programs should be required to provide CMS with the overall score for each subspecialty, with a line item underneath that includes a score on the individual PT tests or procedures that comprised the subspecialty score - such as stain(s), susceptibility and resistance testing, antigen and/or toxin detection, and microbial identification and detection.	Clinical Laboratory Improvement Amendments of 1988 (CLIA) Proficiency Testing Regulations Related to Analytes and Acceptable Performance Proposed Rule was published in the Federal Register on February 4, 2019. https://www.federalregister.gov/documents/2019/02/04/2018-28363/clinical-laboratory-improvement-amendments-of-1988-clia-proficiency-testing-regulations-related-to
September 1-2, 2010	Proficiency Testing	PT Referral – 21. Distinguish acceptable “PT referral” from unacceptable PT referral with the “intent to defraud” in regulations at §493.801(b)(4), allowing CMS more flexibility in imposing sanctions on laboratories.	CMS addressed PT referral in two rules that defined hierarchical actions and clarified terminology. (CMS-1443-FC, CMS-3267-F)
September 1-2, 2010	Proficiency Testing	PT Referral – 22. Designation of acceptable PT referral would allow laboratories to treat PT exactly as patient samples and perform reflex or referral testing when it is included in their standard procedure for patients.	CMS addressed PT referral in two rules that defined hierarchical actions and clarified terminology. (CMS-1443-FC, CMS-3267-F)
September 1-2, 2010	Proficiency Testing	PT Referral – 23. Laboratories should provide documentation to the referral laboratory on the nature of the referral. Referral laboratories should not be penalized.	CMS addressed PT referral in two rules that defined hierarchical actions and clarified terminology. (CMS-1443-FC, CMS-3267-F)
February 9-10, 2010	Miscellaneous	Create an electronic healthcare record (EHR) workgroup tasked with writing a work statement that includes specific issues and recommendations for stakeholders to address. The Committee requested updates regarding the progress of the identified issues in future meetings.	The Communication in Informatics workgroup met on July 11-12, 2012. Updates on EHR implementation have been given at CLIA/CDC meetings since 2011.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
February 9-10, 2010	Genetic Testing	Accept the Biochemical Genetic Testing (BGT) Workgroup report with changes as discussed and approved by the Committee.	Based on CLIA recommendations, good laboratory practices for biochemical, genetic testing and newborn screening were published on April 6, 2012, in the <i>Morbidity and Mortality Weekly Report: Recommendations and Reports MMWR: R&R</i> , Vol. 61, No. RR-03 and available at http://www.cdc.gov/mmwr/pdf/rr/rr6102.pdf .
February 9-10, 2010	Genetic Testing	A recommendation was passed stating CLIA recognizes that there are some rare biochemical, genetic tests which are needed for patient care, but are not currently offered in CLIA-certified laboratories. CLIA requests that CMS and the Office of Rare Diseases Research at the National Institutes of Health (NIH) identify specific test gaps that exist today and seek support from the Office of Rare Diseases Research to set up these tests in CLIA-certified laboratories. This could range from assisting laboratories which currently offer these tests to obtain CLIA certification to setting up these tests in existing CLIA laboratories.	With collaboration and input from CDC, the NIH Office of Rare Disease Research established a "Collaboration, Education, and Test Translation (CETT)" program during 2003-2008 to facilitate the development of rare disease tests in CLIA-certified laboratories.
September 2-3, 2009	Waived Testing	CMS should survey each Certificate of Waiver (CW) laboratory to 1) determine which tests they perform, 2) identify who performs the testing, 3) verify that all testing personnel have been trained and shown to be competent for each test they perform, and 4) verify that the laboratory has a copy of the manufacturer's current instructions for the test, and that testing personnel follow these instructions when performing testing. A pilot study of a subset of CW laboratories should be conducted prior to extending the survey to all CW laboratories.	CMS conducts educational surveys of 2% of waived testing sites every year. Accreditation agencies also survey some waived testing sites. Sufficient resources are not available to allow CMS to survey all Certificate of Waiver testing sites.

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
February 4-5, 2009	Miscellaneous	Convene a workgroup to identify issues, currently available routes, and gaps in translating research testing into CLIA certified clinical laboratories.	CDC convened a workgroup to consider next generation sequencing (NGS) and its implementation in clinical laboratories. CDC established the Next Generation Sequencing-Standardization of Clinical Testing (Nex-StoCT) Workgroup in April 2011 to develop guidance for implementing NGS into clinical settings. The guidelines that resulted from the Workgroup deliberations were published in <i>Nature Biotechnology</i> in November 2012 and available at http://www.nature.com/nbt/journal/v30/n11/full/nbt.2403.html . An update was provided to CLIAC on March 2, 2013.
September 11-12, 2008	Waived Testing	Conduct a study to gather data about the impact of waived testing on patient outcomes, clinician behavior, and other similar issues.	CDC funded a study "Improved Waived Testing Performance and Outcomes through Partnerships."
September 11-12, 2008	Proficiency Testing	Establish a workgroup to examine and provide suggestions regarding the need for revisions to the CLIA requirements for proficiency testing (PT).	The PT Workgroup met on March 10, 2010 and provided input for CLIAC recommendations on September 1-2, 2010.
September 11-12, 2008	Genetic Testing	Form a workgroup to consider good laboratory practices for biochemical, genetic testing (BGT).	CDC and CMS assembled a workgroup of experts to consider good laboratory practices for BGT which met June 1-2, 2009. The workgroup reported to CLIAC on February 9-10, 2010 who recommended good laboratory practices for biochemical, genetic testing. These were published on April 6, 2012, in the <i>Morbidity and Mortality Weekly Report: Recommendations and Reports MMWR: R&R</i> Vol. 61, No. RR-03 and available at http://www.cdc.gov/mmwr/pdf/rr/rr6102.pdf .

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
September 11-12, 2008	Genetic Testing	CLIAC provided recommendations on "Good Laboratory Practices for Molecular Genetic Testing" and recommended they be published in the <i>Morbidity and Mortality Weekly Report: Recommendations and Reports (MMWR: R&R)</i> .	Based on CLIAC recommendations, CDC published "Good Laboratory Practices for Molecular Genetic Testing" was published on June 12, 2009, in the <i>Morbidity and Mortality Weekly Report: Recommendations and Reports MMWR: R&R</i> , Vol. 58, No. RR-06 and available at http://www.cdc.gov/mmwr/pdf/rr/rr5806.pdf .
June 20-21, 2006	Proficiency Testing	Considering the Cytology Workgroup's proposals, CLIAC provided recommendations for changes to the cytology proficiency testing regulations in the following areas: frequency of testing, number of challenges, categories of challenges and number of challenges per category, grading scheme, retesting, confidentiality, validation, new technology, and test site.	CDC and CMS developed a proposed rule for cytology proficiency testing based on CLIAC's recommendations. The proposed rule published January 16, 2009.
February 8-9, 2006	Miscellaneous	Form a workgroup comprised of epidemiologists, clinical laboratories, public health laboratories, industry, and government to examine and broadly address issues related to the impact of rapid testing and molecular technology on public health.	A workgroup comprised of stakeholders including epidemiologists, clinical labs, public health labs, industry, and government, met on November 2, 2006, to consider the impact of rapid and molecular tests for infectious disease agents on public health. Workgroup reported to CLIAC on February 14, 2007.
February 8-9, 2006	Proficiency Testing	Convene CLIAC in June 2006 to consider the Cytology Workgroup's report and make recommendations for changes to the cytology proficiency testing regulations.	CLIAC met June 20-21, 2006 and provided recommendations for revisions to the CLIA cytology proficiency testing requirements. The proposed rule was published on January 16, 2009.
September 7-8, 2005	Miscellaneous	Create a laboratory companion document to accompany the Clinical and Laboratory Standards Institute (CLSI) document currently under development for manufacturers addressing validation of risk mitigation.	CLSI published a Laboratory Guidance Document (EP23); Laboratory Quality Control Based on Risk Management. No manufacturers' document was published.

DATE RECOMMENDED	CATEGORY	CLIAAC RECOMMENDATION	STATUS
September 7-8, 2005	Proficiency Testing	Convene a cytology workgroup to evaluate updated comments from professional organizations and the public and address potential changes to cytology proficiency testing regulations.	Cytology Workgroup comprised of representatives from professional organizations, experts in the field, practicing pathologists, and cytologists met March 28-29, 2006, to address potential changes to cytology proficiency testing regulations. The Workgroup considered current practices and new technology in developing their options for regulatory revision and reported to CLIAAC on June 20-21, 2006.
February 16-17, 2005	Waived Testing	Provide recommendations for good laboratory practices for waived testing.	CLIAAC provided recommendations for good laboratory practices for waived testing which were published November 11, 2005, in the <i>Morbidity and Mortality Weekly Report: Recommendations and Reports MMWR: R&R</i> , Vol.54, No. RR-13 and available at http://www.cdc.gov/mmwr/PDF/rr/rr5413.pdf .
February 16-17, 2005	Proficiency Testing	Consider revising the cytology PT regulations based on updated comments from professional organizations and the public to reflect current practice, evidence-based guidelines, and anticipated changes in technology.	Discussed at the September 2005 CLIAAC meeting during which a workgroup reported to CLIAAC on June 20-21, 2006 and CLIAAC provided recommendations to CMS and CDC. Cytology PT proposed rule published January 16, 2009.
September 22-23, 2004	Miscellaneous	Send letter written by Chair, on behalf of the Committee, to CMS supporting continuing the CMS Certificate of Waiver (COW) surveys beyond 2004.	Ms. Yost notified the Chair that CMS had received funding to continue the COW surveys in 2005 and a letter from CLIAAC to CMS was not needed.

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
February 11-12, 2004	Waived Testing	Convene a workgroup, chaired by Dr. Foucar and Dr. Schwartz, to investigate the feasibility and process for publishing CMS waived laboratory survey data in CDC's <i>MMWR</i> .	A workgroup comprised of physicians, nurses, laboratorians, manufacturers, distributors, and government representatives met on January 12, 2004, and considered options for publication of CMS' waived laboratory survey data and best practice guidelines for waived testing. Recommendations for good laboratory practices for waived testing and CMS survey summaries published November 11, 2005, in <i>Morbidity and Mortality Weekly Report: Recommendations and Reports MMWR: R&R</i> , Vol. 54, No. RR-13 and available at http://www.cdc.gov/mmwr/PDF/rr/rr5413.pdf .
February 11-12, 2004	Waived Testing	Based on CLIAC Waiver Workgroup Report, the Committee provided recommendations for the development of criteria and oversight guidelines for waived testing to FDA and shared these recommendations with AdvaMed.	Recommendations sent to FDA and AdvaMed on April 8, 2004.
September 17-18, 2003	Waived Testing	Convene a Waiver Workgroup of key stakeholders, chaired by Dr. Goldsmith, to review the testing concerns, data on the process of waiver determination and performance of waived tests, and any other relevant information; report to CLIAC the Workgroup's recommendations regarding appropriate changes to the waiver determination process and oversight of waived tests.	A workgroup comprised of federal agencies, industry, laboratorians, physician office laboratories, CLIAC, and other stakeholders met on January 16, 2004, to consider suggestions for changes to the waiver determination process and oversight of waived tests. Waiver workgroup reported to CLIAC on February 11, 2004.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
September 11-12, 2002	Waived Testing	Send letter to the Secretary, HHS, expressing the Committee's concerns related to the possible waiver of rapid HIV tests from the CLIA regulations. CLIA suggested/recommended the following: (1) appropriate oversight, training, QA, QC, and PT are needed for even the simplest HIV testing device, (2) careful review of objective evidence of test performance by waived testing personnel in waived settings is needed before a rapid HIV device is considered for waiver, and (3) the limited public health certificate exception under CLIA would allow these tests to be used without compromising public health.	Letter sent by CLIA on September 12, 2002.
January 30-31, 2002	Miscellaneous	In response to CAP request, consider a letter to Secretary, HHS, regarding the apparent undue burden of the proposed regulations implementing the Health Insurance Portability Accountability Act (HIPAA) on deemed laboratory accreditation organizations acting on behalf of CMS, but obtain CDC/CMS legal counsel review prior to proceeding.	Decision made not to send a letter since original comment period had closed and another HIPAA NPRM was pending publication (published March 27, 2002).
January 30-31, 2002	Miscellaneous	Include breath, when derived from the human body and tested in a laboratory as defined by CLIA, as a specimen source under CLIA.	Pending possible revision of CMS's CLIA implementation policy.
January 30-31, 2002	Personnel	Delete or at least modify the proposed high complexity laboratory director qualification requirement at 493.1443(b)(3)(iii) in the 12/28/01 NPRM to require a more formal mechanism for documenting laboratory expertise.	Deleted in the regulations published in the <i>Federal Register</i> on January 24, 2003.
January 30-31, 2002	Waived Testing	Readdress CLIA's June 8, 2001 letter to FDA (providing the Committee's recommendations relative to FDA's Draft Waiver Guidance) to the Secretary, HHS, as recommendations to be used in rule-making relative to the waiver review criteria and processes.	Letter sent by CLIA on January 31, 2002.
January 30-31, 2002	Miscellaneous	Send a letter to Secretary, HHS, expressing CLIA's support of the National Laboratory System.	Letter sent by CLIA on April 10, 2002.
May 30-31, 2001	Waived Testing	Develop statement reflecting concerns about waiver of rapid, human immunodeficiency virus tests.	Statement presented at FDA Blood Products Advisory Committee on June 14, 2001.

DATE RECOMMENDED	CATEGORY	CLIAC RECOMMENDATION	STATUS
February 7-8, 2001 and May 30-31, 2001	Waived Testing	Provide comments to FDA on the Draft Waiver Guidance.	Comments on all aspects of Draft Waiver Guidance verbally presented to FDA representatives on February 7-8, 2001 and May 30, 2001. A letter containing all CLIAC comments sent to the FDA on June 8, 2001.
February 7-8, 2001	Genetic Testing	Accept the Genetic Testing Workgroup's evaluation of comments received to the 5/4/00 Notice of Intent (NOI) and include the recommendations in a proposed genetic testing rule.	September 2008 CLIAC meeting: CMS determined existing enforcement is sufficient and provided an action plan instead of creating a Genetic Testing specialty.
February 7-8, 2001	Miscellaneous	Develop letter expressing CLIAC support for appropriate containment of wild poliovirus and the HHS survey to be distributed January 2002 identifying laboratories that retain wild poliovirus infectious materials, and the notification to these laboratories to implement biosafety measures.	Letter sent to Dr. Walter R. Dowdle, National Center for Infectious Diseases, CDC, February 8, 2001.
September 27-28, 2000	Waived Testing	Send a letter to Secretary, HHS, requesting an opportunity to provide comments on waiver process and recommend FDA follow the guidelines for waiver approval published in the September 1995 proposed rule.	Letter sent by CLIAC on September 28, 2000.
April 5-6, 2000	Personnel	Send a letter to Secretary, HHS, regarding crisis caused by laboratory workforce shortages.	Letter sent by CLIAC on May 16, 2000.
September 22-23, 1999	Genetic Testing	The Secretary's Advisory Committee on Genetic Testing (SACGT) should formally review the CLIAC recommendations for genetic testing in making decisions.	Recommendations were discussed with SACGT. SACGT requested the Asst. Secretary for Health to expedite publication of the NOI. NOI published May 4, 2000.
September 16-17, 1998	Genetic Testing	Revise the regulations to add definitions and requirements specific for genetic testing for each phase of testing (pre-analytic, analytic, post-analytic) and globally for all phases, where applicable.	Published in the <i>Federal Register</i> on May 4, 2000, as an NOI to solicit comments on CLIAC recommendations. September 2008 CLIAC meeting: CMS determined existing enforcement is sufficient and provided an action plan instead of creating a Genetic Testing specialty.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
September 16-17, 1998	Miscellaneous	Require that embryo laboratory procedures determined to be tested be under the purview of CLIA.	CMS has determined that it will not cover embryo lab procedures. Some are strictly product evaluation which isn't covered by CLIA. Others are clinical and in the scope of the practice of medicine and therefore not in CLIA.
August 30-31, 1995	Quality Control	Revise requirements for certain microbiology reagents to require Quality Control (QC) testing per lot rather than daily QC testing.	Included in the regulations published in the <i>Federal Register</i> on January 24, 2003.
August 30-31, 1995	Quality Control	Require laboratories to document the basis on which they establish the appropriateness of the quality control limits using acceptable protocols.	Required in the QC regulations.
August 30-31, 1995	Quality Control	Include verification of accuracy, precision and reportable range as minimum core requirements for method verification for all laboratories.	Included in the regulations published in the <i>Federal Register</i> on January 24, 2003.
September 27-28, 1994	Proficiency Testing	Lower the consensus required for grading all tests except immunohematology, hematology blood cell identification, and microbiology organism identification and stain reactions from 90% to 80% based on the PT providers' choice of referee laboratories or peer groups.	Included in the regulations published in the <i>Federal Register</i> on January 24, 2003. However, <u>no exceptions</u> were made for hematology blood cell identification, microbiology organism identification and stain reactions.
September 27-28, 1994	Proficiency Testing	Lower the consensus required for grading microbiology organism identification and stain reactions from 90% to 80% based on the results of referee laboratories.	Included in the regulations published in the <i>Federal Register</i> on January 24, 2003. However, consensus required for grading was also lowered from 90% to 80% based on the results of peer groups.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
December 13-14, 1993	Proficiency Testing	Pursue legislative and/or regulatory changes so that cytology proficiency testing (PT) applies to laboratories, not individuals, evaluate alternative media for cytology PT, and encourage the development of private and state-administered glass slide PT programs.	<p>Statutory revision required to eliminate PT of cytology personnel.</p> <p>Computer-based models have been developed and pilot tested through cooperative agreements with CDC. Screening performance has been compared with performance on a glass slide and computer-based PT programs (contract). A study conducted in Maryland to compare performance on glass slide test to computer-based test performance. Publication: Gagnon M, Inhorn S, Hancock J, Keller B, Carpenter D, Merlin T, Hearn T, Thompson, P and Whalen R. Comparison of Cytology Proficiency Testing Glass Slides vs. Virtual Slides. <i>Acta Cytologica</i> vol 48 No. 6, November-December 2004.</p>
December 13-14, 1993	Miscellaneous	Reconsider establishing the accurate and precise technology (APT) subcategory of testing, since it may not provide sufficient regulatory relief to laboratories; at a minimum, publish APT as a proposed rule soliciting public comments on the addition of the subcategory and the proposed requirements.	Notice of Proposed Rulemaking (NPRM) published in the <i>Federal Register</i> on Sept. 15, 1995. NPRM withdrew in the "Unified Agenda of Regulatory and Deregulatory Action" published in the <i>Federal Register</i> on April 26, 1999.
December 13-14, 1993	Personnel	Include doctoral scientists who were board eligible on February 28, 1992, as personnel qualified to serve as clinical consultants.	Board eligible candidates as of February 28, 1992, should have obtained board certification.
August 12, 1993	Personnel	Do not use board certification as the standard of competency/qualification for PPM and do not accept PPM specialty subcategories.	CLIA regulations do not include these provisions.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
August 12, 1993	Waived Testing	Require that all tests, including any cleared by the FDA for home use, meet the CDC proposed guidelines for a waiver.	On November 9, 1997, Congress passed the FDA Modernization Act which revised the CLIA law to require that any test approved by the FDA for home use be waived under CLIA. As a result, test systems cleared by the FDA for home use are automatically waived.
August 12, 1993	Waived Testing	Clarify criteria for a waiver (eliminate 'risk of harm' as a criterion for a waiver, revise criteria to include 'simple laboratory tests and examinations which have an insignificant risk of reducing an erroneous laboratory test result') and re-evaluate tests currently on the waived list.	Clarifications to the criteria for waiver and proposal to reevaluate currently waived tests included in the proposed regulation published in the <i>Federal Register</i> on Sept. 13, 1995.
August 12, 1993	Test Categorization	Include fecal leukocyte, wet mounts of prostatic secretions, qualitative semen analysis in PPM.	Included in the regulations published in the <i>Federal Register</i> on April 24, 1995.
May 26-27, 1993	Personnel	Clarify bachelor's degree for moderate complexity laboratory director and technical consultant and for high complexity general supervisor and technical supervisor, i.e., define and specify equivalent qualifications for the bachelor's degree.	CMS and CDC collaborating to determine path forward.
May 26-27, 1993	Personnel	Revise high complexity testing personnel qualifications to define credentials equivalent to an associate degree in medical laboratory technology or laboratory science, includes one year of laboratory training in all laboratory specialties <u>or</u> 3 months in each specialty testing is performed. Also, prohibit labs from hiring high school graduates for high complexity testing as of effective date of regulations.	Included in the regulations published in the <i>Federal Register</i> on April 24, 1995. Note: High school graduates could be hired until 8/31/97; however, those hired after 1/19/93 require on-site supervision. Those hired after 4/24/95 must have obtained an associate degree or equivalent by 9/1/97.
May 26-27, 1993	Personnel	Revise general supervisor requirements to prospectively require a bachelor's degree with a one-year laboratory training component or 3 months experience in each specialty supervised.	CMS and CDC collaborating to determine path forward.
May 26-27, 1993	Personnel	Do not permit individuals, who qualify as laboratory directors of high complexity testing, to qualify as clinical consultants in lieu of other requirements.	No action required (current regulations do not include such a provision).

DATE RECOMMENDED	CATEGORY	CLIAAC RECOMMENDATION	STATUS
May 26-27, 1993	Personnel	Use interpretive guidelines instead of regulations to list various qualifications (including physician board certifications) in the personnel requirements.	List of approved certification boards removed from the regulations published in the <i>Federal Register</i> on January 24, 2003 and included in revisions to the SOM interpretive guidelines.
May 26-27, 1993	Personnel	Qualify respiratory therapists to serve as blood gas general supervisors and high complexity testing personnel.	Pathways for respiratory therapists to qualify as blood gas general supervisors are included in §493.1461. CMS and CDC collaborating to determine path forward for recommendation related to testing personnel.
May 26-27, 1993	Personnel	"Grandfather" individuals serving as a general supervisor on or before 9/1/92 with: -- associate degree in laboratory science, medical technology, or equivalent + 2 yrs. exp. -- successful completion of accredited laboratory training program or military training program + 2 yrs. exp. -- High School + documented training + 10 yrs. experience (includes 6 yrs. supervisory).	Included in the regulations published in the <i>Federal Register</i> on April 24, 1995.
May 26-27, 1993	Personnel	Qualify neurologists with specialized training and board certification as technical supervisors, general supervisors and testing personnel of neuromuscular histology.	The American Academy of Neurology Committee for Neuromuscular Pathology's documentation of the training and qualifications of neurologists has been approved as a mechanism to qualify neurologists to perform neuromuscular examinations and serve as supervisors of laboratories performing these examinations. Included in the regulations published in the <i>Federal Register</i> on January 24, 2003.
May 26-27, 1993	Personnel	Qualify individuals with doctoral, master's, bachelor's degrees and appropriate experience as technical supervisors of immunohematology.	CMS and CDC collaborating to determine path forward.

DATE RECOMMENDED	CATEGORY	CLIA RECOMMENDATION	STATUS
May 26-27, 1993	Personnel	"Grandfather" individuals qualified under the March 1990 rule as technical supervisors.	No action required ("grandfather" provision for the technical supervisor not included in 1992 final rule).
May 26-27, 1993	Waived Testing	Waive Chemtrak Single Analyte Cholesterol Accumeter.	Categorized as waived, manufacturer notified March 17, 1995, included in the test categorization notice published in the <i>Federal Register</i> on July 8, 1996.
May 26-27, 1993	Personnel	Add midlevel practitioners to the individuals qualified to perform PPM procedures. Change the name of the PPM subcategory from "physician-performed" to "provider-performed" microscopy.	Included in the regulations published in the <i>Federal Register</i> on April 24, 1995. Note: Dentists also added.
February 17-18, 1993 and May 26-27, 1993	Test Categorization	Include examination of nasal smears for granulocytes in PPM.	Included in the regulations published in the <i>Federal Register</i> on April 24, 1995.
February 17-18, 1993	Personnel	Qualify individuals, who as of 9/1/94 are graduates of a laboratory training or 50-week military training program, to perform high complexity testing without supervisory review.	Included in the regulations published in the <i>Federal Register</i> on April 24, 1995. Note: No supervisory review regardless of hire date.
February 17-18, 1993	Personnel	Permit high complexity testing personnel with high school diplomas and documented training as of 9/1/92 to continue testing without an associate degree indefinitely, provided that testing is reviewed within 24 hours.	Included in regulations published in the <i>Federal Register</i> on April 24, 1995. Note: High school graduates with documented training hired before 4/24/95 do not have to obtain an associate degree or equivalent. On-site supervision is required for those hired between 1/19/93 and 4/24/95.
February 17-18, 1993	Waived Testing	Do not add a rapid strep test to the list of waived tests.	Several rapid strep tests have met the CLIA requirements for waiver and are categorized as waived. The list of tests waived may be accessed at http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfCLIA/search.cfm .
February 17-18, 1993	Test Categorization	Do not include Gram stain, Tzanck test and rapid strep tests in PPM.	No action required. These procedures do not meet the criteria for categorization as a PPM procedure.

DATE RECOMMENDED	CATEGORY	CLIA/C RECOMMENDATION	STATUS
February 17-18, 1993	Waived Testing	Develop definitive criteria for categorizing tests as waived and declare a moratorium on further review of tests for waived status until the definitive criteria are developed.	Declared a moratorium on waiver determinations. Moratorium lifted in December 1994 when draft guidelines containing clarified waiver criteria and process for reviewing waiver requests issued to all manufacturers of moderate complexity test systems.
February 17-18, 1993	Test Categorization	Recategorize the HDL-cholesterol performed on the Kodak Ektachem DT 60 from high to moderate complexity and have the Kodak Ektachem DT 60 serve as an Aindex@ test system for the review of similar HDL cholesterol test systems.	Included in the test categorization notice published in the <i>Federal Register</i> on July 26, 1993.
October 28-29, 1992	Waived Testing	Add Hemocue hemoglobin testing to the list of waived tests.	Added "hemoglobin by single analyte instrument..." to the waived test list in regulations published in the <i>Federal Register</i> on January 19, 1993.
October 28-29, 1992	Test Categorization	Categorize urethral/cervical Gram stains as moderate complexity. Categorize Gram stains from all other sources as high complexity.	Included in the test categorization notice published in the <i>Federal Register</i> on July 26, 1993.
October 28-29, 1992	Test Categorization	Consider the isolation, identification, and susceptibility of organisms transferred from culture as a single test and categorize as high complexity.	Included in the test categorization notice published in the <i>Federal Register</i> on July 26, 1993.
October 28-29, 1992	Miscellaneous	Create a subcategory of moderate complexity, physician-performed microscopy procedures (PPM) that does not require routine inspections. Include wet prep, KOH prep, post-coital exam, Fern test, pinworm test and urine microscopic exams in PPM.	Included in regulations published in the <i>Federal Register</i> on January 19, 1993.