COLLEGE of AMERICAN PATHOLOGISTS
Laboratory Quality Solutions

Surveys and Anatomic Pathology Education Programs

2022

Performance you can measure.
Accuracy you can trust.

Year after year, medical laboratory professionals like you have been nothing short of an inspiration as you perform the tests and deliver the results—with unwavering dedication and intricate precision—that help achieve the highest standards of patient care.

As always, the CAP is committed to aiding your endeavors to attain these peak levels of testing reliability through our best-in-class proficiency testing and external quality assessment (PT/EQA) programs and a comprehensive suite of laboratory quality solutions—designed and updated by pathologists to ensure operational excellence and diagnostic confidence.

We draw on the collective expertise of our pathologist members and of medical laboratory professionals worldwide so together we can continue to innovate, improve, and stay ahead of new technologies, testing requirements, and emerging diseases—all in the name of excellence.

So, thank you for being partners in the ongoing pursuit of the best outcomes for patients.

Partners in Excellence

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Systemwide Insight at a Glance.

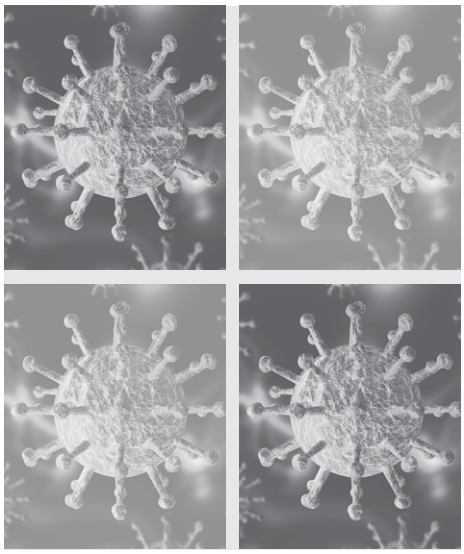
In just seconds, the CAP's Performance Analytics Dashboard provides valuable insights into your laboratory system's performance, letting you proactively focus energy on areas and laboratories that need immediate attention while filtering out distractions. Updated daily, this complimentary proficiency testing and CAP accreditation performance monitoring tool reduces the stress of managing today's laboratory by giving you fast access to a single laboratory or your network's performance.

View your laboratory's Performance Analytics Dashboard by accessing e-LAB Solutions Suite from cap.org.

"I can view our complete system, 12 labs, on a single Performance Analytics Dashboard. I am also able to create and modify laboratory subgroups, such as by region or size, for reporting dashboard performance analytics."

Crystal Sands, MBA, MT(ASCP)SM
Manager of Quality, Regulatory, and Safety
at NorDx Laboratories

1 New Developments



Supporting you with a comprehensive family of PT/EQA and quality improvement programs for SARS-CoV-2.

Ensure accuracy for SARS-CoV-2 testing with PT/EQA programs for molecular testing (COV2), antigen testing (COVAG), and serological testing (COVS).

Monitor performance and assess comparability across multiple instruments in your laboratory with Quality Cross Check for molecular testing (COV2Q), antigen testing (COVAQ), and serological testing (COVSQ).

New Developments

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2 Continuing Education

We support laboratory professionals. Maintain your certification with Surveys continuing education (CE).

- Offer your staff more than 100 CE credits.
- Advance skills with education activities developed by more than 600 physicians and doctoral scientists with expertise in pathology and laboratory medicine.
- Meet certification and licensure requirements with CE across multiple disciplines.

Continuing Education

New Programs NEW

Continuing Education Programs

Your laboratory demonstrates its commitment to quality by choosing CAP Surveys programs. You'll find the same level of quality in the CAP Continuing Education Programs.

CME (Continuing Medical Education for Physicians)

Accreditation

The College of American Pathologists (CAP) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

CME Category 1

The CAP designates these educational activities for a maximum of the stated number of *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CE (Continuing Education for Nonphysicians)

The CAP designates these educational activities for a maximum of the stated number of credits of continuing education. Participants should claim only the credit commensurate with the extent of their participation in the activity.

The American Society for Clinical Pathology (ASCP) Board of Certification (BOC) Certification Maintenance Program (CMP) accepts these activities to meet its continuing education requirements.

This activity is approved for continuing education credit in California and Florida.

Cytotechnologists may apply the credits from the PAP Education (PAPCE/PAPJE/PAPKE/PAPLE/PAPME), NGC, FNAG, FNA, and TICP programs toward the required educational activities for the American Society of Cytopathology (ASC) Continuing Education Credit Program (CECC) and the International Academy of Cytology (IAC).

This activity is eligible for continuing medical education (CME) credit or continuing education (CE) credit.

Surveys Continuing Education Activities

When your laboratory participates in CAP Surveys, every member of your team can enroll in education activities and earn continuing education (CE) credit at no additional charge. Simply follow these steps:

1. Establish a free Web account.
2. Complete a reading provided in the Participant Summary or Final Critique.
3. Answer online learning assessment questions.
4. Claim CE certificate.

Each member of your staff can access the Surveys education activities for a maximum of 12 months.

Surveys Educational Activities

Program Name	Program Code	Discipline	Catalog Page(s)
General Chemistry	C1, C3/C3X, C4, C7, CZ/CZX/CZ2X, Z	Chemistry	56-58, 79
Quality Cross Check—Whole Blood Glucose	WBGQ	Chemistry	41
Endocrinology	Y, YY, DY, BGS, BU, EPO, ING, RAP	Chemistry	86-88, 90-91
Blood Gas	AQ, AQ2, AQ3, AQ4	Chemistry	94
Special Chemistry	M, OLI, LPE, SPE, UBJP	Chemistry	76, 78
Coagulation—Limited	CGB, CGL, CGDF	Coagulation	162
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Limited Bacteriology	D1, D2, D3, D5, D6, D8, MC3, MC4, RMC	Microbiology	177-179, 181-182
Sperm Count, Motility, Morphology, and Viability	SMCD, SM1CD, SM2CD	Reproductive Medicine	158
Semen Analysis	SC, SC1, PV, PV1, SM, SV, ASA	Reproductive Medicine	158
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Transfusion Medicine	J, JE1, EXM, EXM2, J1, JAT, JATE1	Transfusion Medicine	228-229, 231

Surveys Self-Reported Training Opportunities

When your laboratory participates in CAP Surveys, *every member of your team* can receive self-reported training opportunities.

Self-Reported Training Opportunities*

Program Name	Program Code	Source	Catalog Page(s)
Quality Management Tools			
QP211 - Antimicrobial Susceptibility Testing: Monitoring and Trend Analysis	QP211	Data Analysis and Critique	27
QP222 - Laboratory Staffing Ratios NEW	QP222	Data Analysis and Critique	28
QPC10, QPC25 - Technical Competency Assessment of Peripheral Blood Smears NEW	QPC10, QPC25	Data Analysis and Critique	29
QPD10, QPD25 - Technical Competency Assessment of Gram Stains	QPD10, QPD25	Data Analysis and Critique	30
Hematology and Clinical Microscopy			
Blood Cell Identification, Photographs	BCP, BCP2	Participant Summary	141
Bone Marrow Cell Differential	BMD	Participant Summary	141
Expanded Virtual Peripheral Blood Smear	EHE1	Participant Summary	146
Hematology Automated Differential Series	FH1-FH13, FH16, FH1P-FH13P, FH16P	Participant Summary	138
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Hemoglobinopathy	HG	Participant Summary	142
Virtual Body Fluid	VBF	Participant Summary	150
Virtual Peripheral Blood Smear	VPBS	Participant Summary	145
Clinical Microscopy	CMP, CMMP, CMP1	Participant Summary	148-149
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Expanded Bacteriology	DEX	Participant Summary/Final Critique	176
Mycobacteriology	E	Participant Summary/Final Critique	192
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*Notes:

- CAP Self-Reported Training Opportunities do not offer CE credit, but can be used toward fulfilling requirements for certification maintenance by agencies such as the American Society for Clinical Pathology (ASCP). Please verify with your certifying agency to determine your education requirements.
- These opportunities are subject to change. Refer to the Participant Summary/Final Critique for availability.

Continuing Certification (CC)

Continuing Certification (CC) is the board certification program that involves continuous professional development and ensures that an American Board of Pathology (ABPath) board-certified pathologist is committed to lifelong learning and competency in a specialty and/or subspecialty.

There are six competency categories defined by the American Board of Medical Specialties (ABMS) and endorsed by the ABPath to fulfill specific CC requirements. They are listed below with their descriptions.

All CAP education activities providing CME credits meet the CC Part II: Lifelong Learning requirements. Some programs will meet the requirements for CC Improvement in Medical Practice (IMP) (formerly Part IV) at the laboratory or the individual levels. Programs that meet IMP are identified within the description of the program. Visit the CAP website for the current list of programs that meet the requirements for CC Part II and IMP.

Interpersonal and Communication Skills
Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates.

Medical Knowledge
Demonstrate knowledge of established and evolving biomedical, clinical, and cognate sciences and the application of this knowledge to pathology.

Practice-Based Learning and Improvement
Demonstrate ability to investigate and evaluate diagnostic and laboratory practices in your own laboratory, appraise and assimilate scientific evidence, and improve laboratory practices and patient care.

Patient Care
Demonstrate a satisfactory level of diagnostic competence and provide appropriate and effective consultation in the context of pathology services.

Professionalism
Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diverse patient population.

Systems-Based Practice
Demonstrate understanding of and contribution to local, regional, and national health care systems, and support health care in systems-based practice definition.

Education Programs

Program Name	Program Code	Maximum *AMA PRA CME Category 1 Credits* Annually	Maximum CE Credits Annually	Format	Catalog Page
Autopsy Pathology*	AUP/AUP1	12.5	NA	Online (DigitalScope®)	300
Clinical Pathology Improvement Program*	CPIP/CPIP1	15	NA	Online	14
Digital Slide Program—Dermatopathology*	DPATH/DPATH1	15	NA	Online (DigitalScope)	283
Digital Slide Program in FNA*	FNA/FNA1	10	10	Online (DigitalScope)	308
Fine-Needle Aspiration Glass Slide	FNAG/FNAG1	10	10	Glass Slides	309
Forensic Pathology*	FR/FR1	12.5	12.5	Online	312
Hematopathology Online Education*	HPATH/HPATH1	12.5	12.5	Online (DigitalScope)	147
Informatics Case-Based Education*	ICBE/ICBE1	4	NA	Online	15
Nongynecologic Cytopathology Education**	NGC/NGC1	25	25	Glass Slides with Online Cases (DigitalScope)	307
Neuropathology Program*	NP/NP1	10	NA	Online (DigitalScope)	301
Gynecologic Cytopathology PAP Education Program***	PAPCE/APAPCE PAPJE/APAPJE PAPKE/APAPKE PAPLE/APAPLE PAPME/APAPME Series 1 or 2	8	8	Glass Slides	303
Glass Slide Cytopathology PAP PT Program (with Glass Slide PAP Education)***	PAPCPT/APAPCPT PAPJPT/APAPJPT PAPKPT/APAPKPT PAPLPT/APAPLPT PAPMPT/APAPMPT	8	8	Glass Slides	302

Continued on the next page

*Program is available for purchase online. Go to cap.org and choose the Learning tab.

**NGC provides up to 20 CME/CE credits for the glass slides and 5 CME/CE credits for the online slide portion of the program.

***PAP provides up to 8 CME/CE credits for the glass slides.

Education Programs continued					
Program Name	**Program Code**	**Maximum *AMA PRA CME Category 1 Credits* Annually**	**Maximum CE Credits Annually**	**Format**	**Catalog Page**
Performance Improvement Program in Surgical Pathology	PIP/PIP1	40	NA	Glass Slides with Online Cases (DigitalScope)	281
Online Performance Improvement Program in Surgical Pathology*	PIPW/PIPW1	40	NA	Online (DigitalScope)	280
Nongynecologic Cytopathology Intraoperative Touch Imprint/ Crush Preparation Program*	TICP/TICP1	10	10	Online (DigitalScope)	306
Variant Interpretation Only Program*	VIP/VIP1	3.75	3.75	Online	264
Virtual Biopsy Program*	VBP/VBP1	25	NA	Online (DigitalScope)	282

*Program is available for purchase online. Go to cap.org and choose the Learning tab.

System Requirements

DigitalScope is a Web-based whole slide image (WSI) retrieval and viewing system. DigitalScope is supported with Microsoft Internet Explorer 11.0 (limited support for IE 9 and 10) or later, Firefox 4.0 or later, Safari 3, and the latest Google Chrome version.

For the most up-to-date information on system requirements, go to cap.org and click **System Requirements**, located at the bottom of the homepage. The download speed and the appearance of the activity will vary depending on the type and speed of your Internet connection, computer's power, and browser.

Clinical Pathology Improvement Program (CPIP)

New for 2022: The new CPIP program mobile adaptive format lets you access cases when and where it's convenient to you. Keep your skills, and those of your department, up-to-date with interactive, case-based learning to address both common and esoteric issues faced in the laboratory.

CPIP supports pathologists who principally practice clinical pathology as well as those who primarily practice anatomic pathology but cover clinical pathology. A diverse portfolio of real-life case scenarios, including images and clinical background, helps pathologists to stay abreast of issues and advances in the laboratory.

Designed by pathologists, for pathologists. Each case is developed and peer-reviewed, ensuring what you learn is practical and easily applied to your work. Thought provoking questions with feedback and multiple-choice knowledge checks allow you to assess and confirm your diagnostic skills. Participants may apply 1.25 CME credits for each CPIP toward the ABPath's Continuing Certification (CC) requirements.

Clinical Pathology Improvement Program CPIP/CPIP1		
Program Name	**Program Code**	**Cases per Year**
	CPIP/CPIP1	
Online cases in clinical pathology	▮	12 (One per month. See below.)

Additional Information

Consider the CPIP program if you are a:

- Medical director seeking to continuously improve the clinical pathology knowledge and collective skills of your pathology team.
- Pathologist with clinical and/or laboratory management responsibilities.
- Pathologist seeking CME/CC credits in clinical pathology.
- Subspecialty clinical pathologist who needs to keep current.

Following is a list of our 2022 cases.*

Discipline	Case Schedule*	Month 2022
Microbiology	Reducing blood culture contamination	January
Laboratory Management	How to implement a critical value policy	February
Hematology	Aplastic anemia	March
Transfusion Medicine	Panagglutinin	April
Chemistry	CO poisoning	May
Microbiology	Interpretation of GI panels	June
Transfusion Medicine	O RBCs*	July
Chemistry	Amenorrhea*	August
Hematology	Plasma cell neoplasms	September
Laboratory Management	Instrument correlations*	October
Laboratory Management	Ethics and professionalism*	November
Molecular Pathology	Preanalytic factors for molecular testing	December

*Subject to change

To learn more visit cap.org and search CPIP.

Program Information

- CPIP - One online clinical laboratory case per month
- CPIP1 - Additional Pathologist (within the same institution) reporting option with CME credit; must order in conjunction with CPIP
- Earn a maximum of 15 CME credits *(AMA PRA Category 1 Credits)* per year
- Twelve cases per year; your CAP shipping contact will be notified via email when the activity is available

CME credit

Informatics Case-Based Education (ICBE/ICBE1)

ICBE addresses a common gap in pathologist training by exploring the connections between technology, staff, workflow processes, and data management—in other words, informatics. Real-life case scenarios that include decision-making with feedback and engaging interactions help pathologists gain practical knowledge to address relevant issues in practice such as software implementations and upgrades, laboratory test ordering issues, regulatory compliance, and analysis of patient population data through laboratory testing. Appropriate for laboratory medical directors or staff pathologists, all cases are designed and peer-reviewed by pathologists, for pathologists. Participants may earn CME credits for each case completed.

NEW

Informatics Case-Based Education ICBE/ICBE1

Program Name	Program Code	Cases per Year
	ICBE/ICBE1	
Online cases in clinical informatics	▮	4 (One per quarter. See below.)

Additional Information

Consider the ICBE program if you are a:

- Medical director seeking to improve the informatics knowledge and collective skills of your pathology team.
- Pathologist with informatics and/or laboratory management responsibilities.
- Pathologist wanting to improve skills and knowledge related to laboratory informatics.
- Pathologist seeking CME credits in clinical informatics.

Case Schedule*	Month 2022
Histology asset tracking to improve patient safety	February
Discrepancies in fulfillment of physician orders	May
Patient privacy breach	August
Screening patients for underlying diseases	November

*Subject to change

To learn more, visit cap.org and search Informatics.

Program Information

- ICBE - One online clinical informatics case per quarter
- ICBE1 - Reporting option with CME credit for each additional pathologist (within the same institution); must order in conjunction with ICBE
- Earn a maximum of 4 CME credits *(AMA PRA Category 1 Credits)* per year
- Four cases per year; your CAP shipping contact will be notified via email when the activity is available

CME credit

Competency Assessment Program

About one of every five laboratories is cited for a deficiency related to its competency assessment records. You can avoid becoming a part of this statistic.

Competency Assessment Program

The CAP's Competency Assessment Program helps keep you in compliance by managing your personnel's competency assessment performance and records. Use the CAP's Competency Assessment Program to track compliance to all six of the elements of competency assessment as defined by CLIA. Customizable to fit your specific laboratory's procedures, Competency Assessment Program offers benefits that simplify your documentation process.

- **Be organized.** Stay on top of your documentation and records with easy-to-use management reports, employee progress tracking, and individual employee transcripts so your laboratory is inspection-ready at all times.
- **Obtain real-time results.** Generate management reports with just a few clicks.
- **Strengthen your learning.** The program comes ready with multiple relevant, applicable courses already loaded, and new courses are added every six months.
- **Customize training to your needs.** If the wide selection of ready-made training courses (Pro Courses) doesn't meet your needs, customize them. You can match courses to your laboratory's exact standard procedures.
- **Save time.** Tools like ChecklistBuilder, CourseBuilder, and Competency Profiles allow your administrators easy, convenient methods to document all six areas of competency as defined by CLIA and the CAP Laboratory Accreditation Program.
- **Access anywhere.** The Competency Assessment Program is cloud based, so it's available 24/7 from any PC, laptop, or tablet—wherever you have an Internet connection. Courses are available for users throughout the subscription period.
- **Stay focused.** Use instrument-specific checklists for assessing competency and training.
- **Remain in compliance.** Many of the ready-made educational courses provide your staff the opportunity to earn CE credits.

Add Safety & Compliance Courses Especially Developed for the Laboratory

As an add-on option, Competency Assessment Program offers a package of seven non-credit, complementary safety and compliance courses—appropriate for annual laboratory-specific compliance training and for clinical laboratory science students prior to clinical rotations. These courses include:

- OSHA Bloodborne Pathogens
- OSHA Hazard Communication and Chemical Hygiene
- OSHA Electrical Safety
- OSHA Fire Safety
- OSHA Formaldehyde
- Tuberculosis Awareness for Health Care Workers
- Medical Error Prevention: Patient Safety

The CAP updates these courses as necessary to reflect changes in regulations or best practices.

With the Competency Assessment Program, you can keep your laboratory organized and inspection-ready every day of the year. Choose the Competency Assessment Program subscription that fits your lab. Please refer to the ordering information and course descriptions on the following pages. For more information, visit cap.org and choose Laboratory Professionals Learning Programs via the Learning tab.

Number of Users*	Competency Assessment Program	Competency Assessment Program with Optional Safety & Compliance Courses**
2 to 50	CA0050	CA0050 + XCA0050
51 to 250	CA0250	CA0250 + XCA0250
251 to 500	CA0500	CA0500 + XCA0500
501 to 1000	CA1000	CA1000 + XCA1000
1001 to 1500	CA1500	CA1500 + XCA1500

*For subscriptions for single users or more than 1500 users, please contact the CAP for more information.
**Safety & Compliance Course subscriptions require a standard Competency Assessment Program subscription.

Assessment Course Schedule

Discipline	January 2022 Release	July 2022 Release
Blood Banking/Transfusion Medicine—Generalist	Blood components—storage, handling, and selection	Quality control in the blood bank laboratory
Blood Banking/Transfusion Medicine—Specialist	Blood components—storage, handling, and selection	Quality control in the blood bank laboratory
Chemistry	Cardiac biomarkers	Therapeutic drug monitoring
Hematology/Coagulation	Erythrocyte inclusions	White blood cells
Histology	Quality management in histology	IHC—part 1
Immunology	Hepatitis testing	Rapid serology kit tests
Microbiology—Generalist	Blood cultures	Microbiology of the gastrointestinal tract
Microbiology—Specialist	Blood cultures	Microbiology of the gastrointestinal tract
Phlebotomy/Specimen Processing	Common pitfalls in specimen processing	General specimen handling and transportation requirements
Point-of-Care Testing	Whole blood glucose testing	Blood gas testing
Quality Programs/Management	Investigating occurrences (occurrence reports, root cause analysis, corrective action)	Development and implementation of a quality management program
Safety	SARS-CoV-2/COVID: biosafety precautions	General laboratory safety
Urinalysis/Body Fluids	Physical and chemical urinalysis	Microscopic urinalysis—part 1

Pro Course Schedule

Discipline	January 2022 Release	July 2022 Release
Blood Banking/Transfusion Medicine	Antibody screen and ID	Transfusion reactions
Chemistry	Liver and renal testing	Chemistry QC, calibration, and reportable range
Hematology/Coagulation	Common coagulation tests	Platelet testing, morphology, and disorders
Histology	Safety issues in the histology laboratory	Special stains
Immunology	Qualitative HIV testing	Molecular amplification methods for detection of infectious diseases
Microbiology	Gram stain: organism detection and differentiation	Urine and body fluid cultures
Phlebotomy/Specimen Processing	Challenges of phlebotomy: pediatric blood collection, alternate sites, and difficult draws	Specimen collection for workplace urine drug testing programs and forensic drug and alcohol testing
Point-of-Care Testing	Whole blood prothrombin time and INR (PT/INR) testing	Cardiac biomarkers
Quality Programs/Management	Laboratory management: monitoring the quality control program	Competency evaluation
Safety	Fire and electrical safety	Ergonomics
Urinalysis/Body Fluids	Cerebrospinal fluid analysis	Semen analysis

Safety & Compliance Courses

OSHA Bloodborne Pathogens. Addresses the OSHA Bloodborne Pathogens standard as it applies to clinical and medical laboratories. Covers major bloodborne pathogens, including hepatitis B and HIV. Focuses on proper handling of sharps, personal protective equipment (PPE), engineering controls such as microbiological safety cabinets, and proper work practices like handwashing.

OSHA Hazard Communication and Chemical Hygiene. Describes the OSHA Chemical Hygiene Standard and helps satisfy OSHA requirements for annual training. Explains Haz-Com, the National Fire Protection Agency diamond, the Safety Data Sheet, and common-sense laboratory safety rules applied to clinical laboratory practice.

OSHA Electrical Safety. Addresses electrical safety and electrical hazards commonly found in the clinical laboratory. Covers prevention and safety measures, fighting electrical fires, and treatment of electrical injuries.

OSHA Fire Safety. Teaches the basics of fire safety in the clinical laboratory, including classes of fire and key acronyms, such as PASS and RACE. Addresses fire prevention, drills, and firefighting techniques.

OSHA Formaldehyde. Covers essentials for any laboratory that uses formaldehyde or formalin. Shares facts about formaldehyde, safety risks, proper handling procedure, monitoring, spill clean-up, and personal protective equipment.

Tuberculosis Awareness for Health Care Workers. Provides background information about spread of tuberculosis, purified protein derivative (PPD) testing procedures, CDC guidelines, and methods of control.

Medical Error Prevention: Patient Safety. Includes potential causes of medical errors in the clinical laboratory, important legislation and definitions, and steps laboratory professionals can take to reduce the impact of medical errors in their workplace. Serves as an ideal part of an effective medical error reduction program. Appropriate for both experienced and newer laboratory personnel.

Note: The Safety & Compliance courses are not available for purchase separately. The courses listed above do not offer CE credit.

Enhance the culture of patient safety in your laboratory.

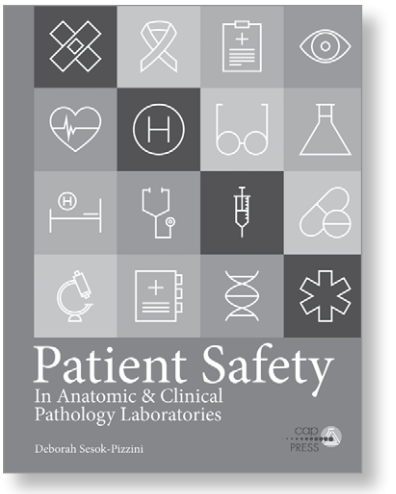
This informative guide will not only help you connect the culture of patient safety in your laboratory to the overall goals of your health care enterprise, but it will also help you:

- Prevent errors in communication, handoffs, and transitions
- Use technology to improve laboratory patient safety
- Learn how cognitive bias can contribute to patient safety errors
- Build high-reliability teams
- Engage the patient navigator to address safety issues through continuity and coordination of care
- Develop and implement a patient safety curriculum for the laboratory
- Understand how accreditation milestones advance patient safety initiatives

Add Patient Safety In Anatomic & Clinical Pathology Laboratories (PUB316) to your order.

Or, view sample pages and purchase online:

- printed books at estore.cap.org
- ebooks at ebooks.cap.org



Item number: PUB316
Softcover; 128 pages; 2017

QM*Ed*™ Online Educational Courses

Tailored education and quality tools developed with pathologist input

Quality Management Educational Resources (QM*Ed*) courses will help you:

- Build a quality management system (QMS) – one piece at a time – that sustains your continuous improvement and Lean efforts
- Self-assess your current QMS against international quality standards
- Interpret ISO 15189 requirements
- Perform internal audits using tracer audit and process audit methods
- Implement and refine occurrence management with root cause analysis

Course Information

- Delivered online via interface that allows you to pause, resume where you left off, and learn at your own pace
- Mobile-friendly so that you can learn where and when you want
- Accessible a minimum of twelve months
- Includes continuing education (CE) credit
- Individual learners can use their own login and will have their own bookmarking when they leave and return to the course

About the Courses

Risk Management
Order QMEDRISK NEW

Learn how the different elements of the quality management system—eg, internal audit, data analysis—play a role in identifying and controlling risk. Learn best practices for managing your risks, as well as practical tools that apply to all phases of the risk management process. Included is a case example showing how high-level risk assessment can be integrated into management review.

4 CE credits available

Quality Culture
Order QMEDQCUL

Designed for laboratory medical directors, administrative directors, quality managers, and other leaders who can affect the culture of their laboratory through their decisions and actions. The course provides an adaptable program for proactively shaping culture. It includes video commentary by CAP member pathologists. Includes a unique Culture Assessment Tool that helps laboratory leadership get a picture of where your organization needs to improve and where it is strong. This tool helps make culture change a reality.

4 CE credits available

Root Cause Analysis
Order QMEDROOT

Learn real-world methodology to conduct a root cause analysis, along with the tools necessary to implement it. Learn from actual examples of complete root cause analysis based on projects in laboratories like yours. You will even perform key steps based on a participant case study. Includes the RCA Performance and Feedback Toolkit, a set of tools an organization can use to guide and assess root cause analysis projects. The course is designed for laboratory quality managers and implementation team members.

6 CE credits available

Mistake Proofing
Order QMEDMIST

Increase your ability to design new processes, modify existing processes, minimize mistakes, and manage your risks. This course provides a methodology focused on five main categories of mistake-proofing tactics and shows examples of these tactics from the domain of laboratory medicine. It includes video commentary by CAP member pathologists with experience using Lean and other process improvement techniques.

4 CE credits available

Internal Auditing
Order QMEDAUDT

Increase your capabilities for internal auditing with a proven methodology for process audits, tracer audits, and laser audits. Learn how to prepare for interviews, communicate findings to your quality management team, and use audits to drive process improvements. The course provides detailed, real-world examples you can use to build your own audit plans, plus multimedia presentations of key concepts.

3 CE credits available

Management Review
Order QMEDMGMT

This course interprets the ISO 15189 requirements for management review. The CAP's ISO 15189 assessors discuss how to structure the review meeting, communicate results of quality assessments, and prompt strategic decisions from management—all in the context of the overall health of your organization.

2 CE credits available

Quality Manual Development
Order QMEDMANL

This course provides guidance on how to go beyond a quality plan to develop a manual that organizes and communicates your laboratory's quality management system. You will see an example of an effectively structured and written manual so you can organize and create your own. Plus, the CAP's ISO 15189 assessors show you approaches to link your quality policy to quality objectives and metrics.

2 CE credits available

Document Control
Order QMEDDOCU

This "how-to" course on document control systems details how to control documents in a way that meets ISO 15189 requirements, how to accomplish document control even with minimal resources (such as spreadsheets), and how document control contributes to cost containment. Audio recordings of the CAP's ISO 15189 assessors provide examples and commentary on common pitfalls and issues.

2 CE credits available

QMS Implementation Roadmap
Order QMEDROAD

Outlines the practical steps necessary to build, implement, and maintain a quality management system that meets the ISO 15189 standard. Video recordings of the CAP's ISO 15189 assessors provide perspective on best practices and pitfalls. Designed for laboratory quality managers, plus your implementation team members.

2 CE credits available

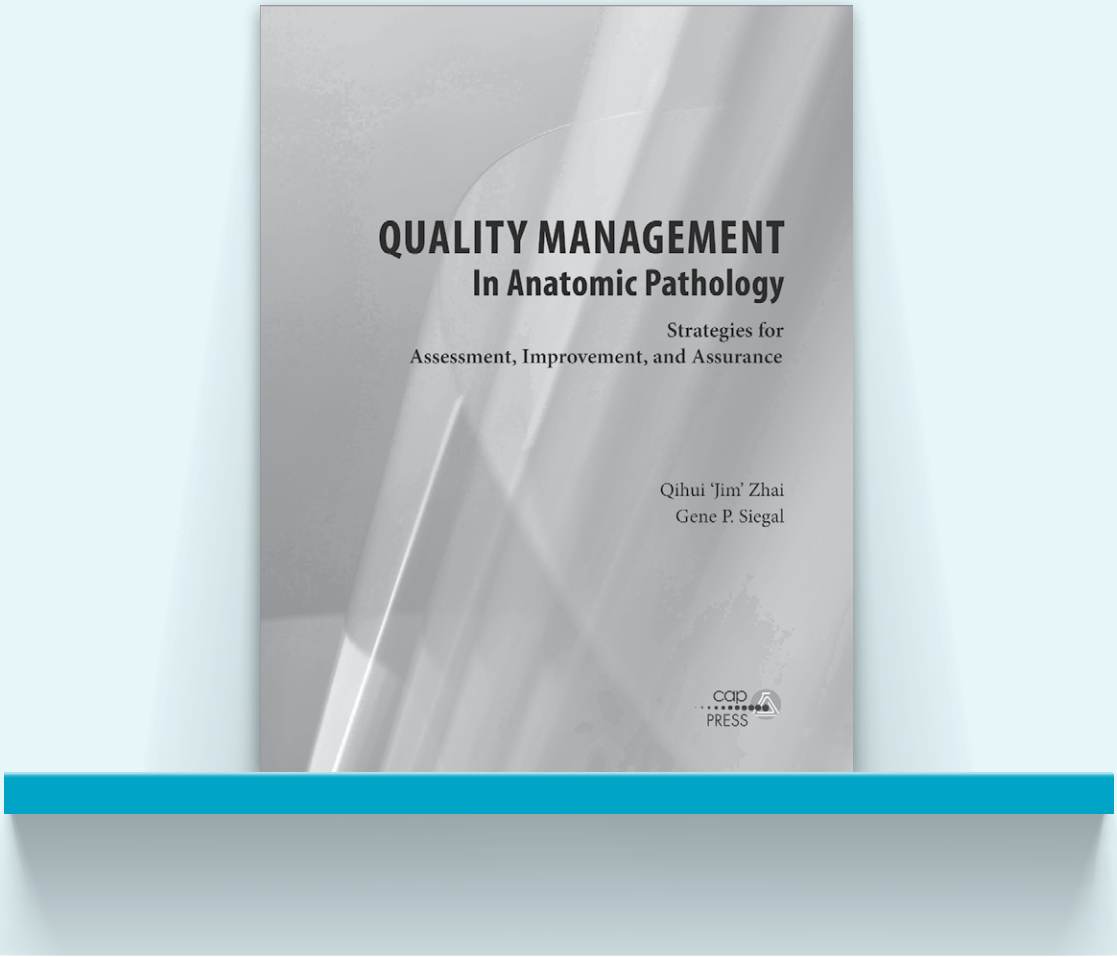
15189 Walkthrough
Order QMEDWALK

Designed for laboratory quality managers (along with your medical and administrative decision makers) considering implementation of an ISO 15189 program. Summarizes each section of the standard, while clarifying its intent and key requirements. See video recordings of the CAP's ISO 15189 assessors who offer context and examples of how technical problems relate to more fundamental deficiencies in the quality management system.

2 CE credits available

Make sure your laboratory team is ready to meet the challenges ahead. Add QM*Ed* courses to your order form. For more information, visit cap.org and search QM*Ed*.

Your guide to develop, implement, and maintain a laboratory quality management plan.



Created specifically for the needs of the anatomic pathology laboratory, this comprehensive manual can help you develop, implement, and maintain a comprehensive quality program. Learn valuable tips for designing your own laboratory quality plan that documents regulatory compliance. Text includes cross-references to the CAP's Laboratory Accreditation Program checklists, Joint Commission standards, and CLIA '88.

Quality Management In Anatomic Pathology

Item number: PUB125

Softcover; 228 pages; 135+ figures and tables; 2017

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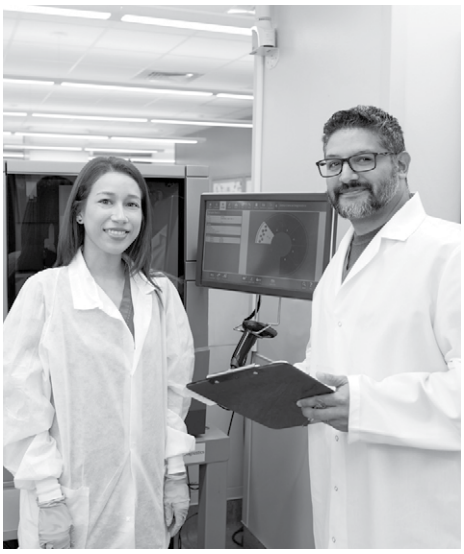
Ebooks at **ebooks.cap.org**

3 Quality Management Tools



Strengthen your quality assessment expertise.

New quality assessment studies provide opportunities yearly to monitor and benchmark performance indicators.

- Monitor emerging trends in antimicrobial resistance to support clinical decision-making and evaluate infection control interventions (QP211).
- Ensure your staff's technical competency for Gram stains (QPD10/QPD25) and peripheral blood smears (QPC10/QPC25).
- Assess clinical laboratory staffing ratios and benchmark performance (QP222).

Quality Management Tools

New Programs NEW

Program Changes

Discontinued Programs

Physician Satisfaction with Clinical Laboratory Services (QP213)

Quality Management Tools

Utilize the CAP's quality management tools to benchmark outside of your laboratory. The CAP's quality management tools provide a convenient solution to measure and document improvements to processes within your laboratory's quality management plan. Annual quality assessments monitor performance indicators such as turnaround time and patient identification errors throughout the year so you can improve your total testing process. One-time quality assessments provide new opportunities each year to monitor performance indicators such as staff competency to keep your laboratory current.

Available for both clinical and anatomic pathology laboratories, quality management tools examine preanalytic, analytic, and postanalytic phases, helping participants to:

- **Establish realistic goals** by comparing performance against similar institutions with comparable demographics
- **Monitor progress** through unique and robust quality indicators on a periodic basis
- **Make effective quality management decisions** based on practical and in-depth individual reports provided to participants
- **Improve efficiencies** to allow time for more patient-centric activities
- **Easily integrate quality management into your daily work processes** with predesigned monitoring tools developed by laboratory professionals and scientists
- **Meet the requirements** of the American Board of Pathology Continuing Certification (CC)

Purchase combination packages and save.

Module/Package	Program Code
Individual QP Studies	**QP211, QP222, QPC10/QPC25, QPD10/QPD25**
Four QP Studies—Includes QP211, QP222, QPC10, QPD10	**PRO**
Individual Clinical Pathology (CP) Monitors	**QT1, QT2, QT3, QT4, QT7, QT8, QT10, QT15, QT16, QT17**
Individual Anatomic Pathology (AP) Monitor	**QT5**
Clinical Pathology Module—Includes all 10 CP QT Monitors	**QTC**
Combined CP/AP Module—Includes all 11 QT Monitors	**QTP**

Quality Management Tools Studies

A comprehensive collection of tools to complement your quality management program needs.*

Select from the following studies to support your quality improvement initiatives.	Preanalytic	Analytic	Postanalytic	Anatomic Pathology	Clinical Pathology	Turnaround Time	Patient Safety	Microbiology	Transfusion Medicine	Chemistry/ Hematology	Customer Satisfaction
Antimicrobial Susceptibility Testing: Monitoring and Trend Analysis (QP211)			▮		▮		▮	▮			▮
Laboratory Staffing Ratios (QP222) NEW				▮	▮		▮	▮	▮	▮	▮
Technical Competency Assessment of Peripheral Blood Smears (QPC10/QPC25) NEW		▮			▮		▮			▮	
Technical Competency Assessment of Gram Stains (QPD10/QPD25)		▮			▮		▮	▮			
Patient Identification Accuracy (QT1)	▮				▮		▮				▮
Blood Culture Contamination (QT2)	▮	▮			▮		▮	▮			▮
Laboratory Specimen Acceptability (QT3)	▮				▮					▮	▮
In-Date Blood Product Wastage (QT4)			▮		▮				▮		
Gynecologic Cytology Outcomes: Biopsy Correlation Performance (QT5)	▮	▮	▮	▮			▮				▮
Satisfaction with Outpatient Specimen Collection (QT7)	▮				▮		▮				▮
Stat Test Turnaround Time Outliers (QT8)		▮			▮	▮	▮			▮	
Critical Values Reporting (QT10)			▮		▮		▮			▮	▮
Troponin Turnaround Times (QT15)	▮	▮	▮		▮	▮	▮			▮	▮
Corrected Results (QT16)			▮		▮		▮	▮	▮	▮	▮
Outpatient Order Entry Errors (QT17)	▮				▮		▮			▮	▮

*The CAP requires accredited laboratories to have a quality management plan that covers all areas of the laboratory and includes benchmarking key measures of laboratory performance (GEN.13806, GEN.20316, COM.04000). The Joint Commission requires accredited hospitals to regularly collect and analyze performance data (PI.01.01.01, PI.02.01.01). CLIA requires laboratories to monitor, assess, and correct problems identified in preanalytic, analytic, and postanalytic systems (§493.1249, §493.1289, §493.1299).

One-Time Opportunities to Perform In-Depth Quality Assessments

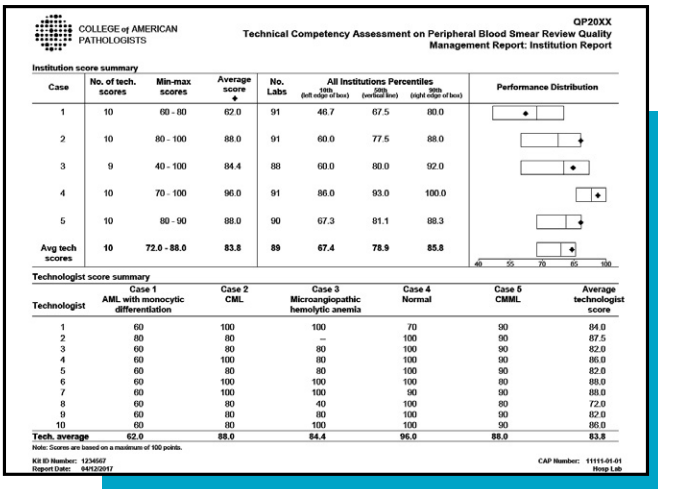
Implement quality monitoring—Use these short-term comprehensive quality studies[1] to learn how to start monitoring and measuring key processes that you may not have followed in the past or that are not commonly monitored in most laboratories. These studies analyze hot topics and industry trends to keep the laboratory current.

Gain experience in data collection and analysis—Participants will collect data during predetermined dates. Based on submitted data, the CAP provides personalized reports with the individual participant's performance compared against other participants.

Strengthen your quality assessment expertise—The CAP's pathologist experts provide in-depth discussion and identify best practices for laboratories to strive for. In addition, consolidated results of the studies are carefully reviewed and analyzed to be published in the form of scientific articles. Such articles give participants an extra layer of information to be utilized for further analysis.

Participants in the one-time program receive:

- User Guide
- Templates and instructions for data collection
- Individual report, how to interpret the results guide, overall aggregated data
- Summary Report for competency programs with all-laboratories study results and case information, or Data Analysis and Critique that includes data distributions and initial analysis of laboratory practices and commentaries from pathologist experts on improvement opportunities
- Notification of the scientific articles that are published with the results of the studies


COLLEGE of AMERICAN PATHOLOGISTS

QP20XX

Technical Competency Assessment on Peripheral Blood Smear Review Quality Management Report: Institution Report

Institution score summary

Case	No. of tech. scores	Min-max scores	Average score	No. Labs	All Institutions Percentiles 10th (left edge of box)	50th (vertical line)	90th (right edge of box)	Performance Distribution
1	10	60 - 80	62.0	91	46.7	67.5	80.0	
2	10	80 - 100	88.0	91	60.0	77.5	88.0	
3	9	40 - 100	84.4	88	60.0	80.0	92.0	
4	10	70 - 100	96.0	91	86.0	93.0	100.0	
5	10	80 - 90	88.0	90	67.3	81.1	88.3	
Avg tech scores	10	72.0 - 88.0	83.8	89	67.4	78.9	85.8	

40 55 70 85 100

Technologist score summary

Technologist	Case 1 AML with monocytic differentiation	Case 2 CML	Case 3 Microangiopathic hemolytic anemia	Case 4 Normal	Case 5 CMML	Average technologist score
1	60	100	100	70	90	84.0
2	80	80	--	100	90	87.5
3	60	80	80	100	90	82.0
4	60	100	80	100	90	86.0
5	60	80	80	100	90	82.0
6	60	100	100	100	80	88.0
7	60	100	100	90	90	88.0
8	60	80	40	100	80	72.0
9	60	80	80	100	90	82.0
10	60	80	100	100	90	86.0
Tech. average	62.0	88.0	84.4	96.0	88.0	83.8

Note: Scores are based on a maximum of 100 points.

Kit ID Number: 1234567
Report Date: 04/12/2017

CAP Number: 11111-01-01
Hosp Lab

These activities meet the American Board of Pathology Continuing Certification (CC) requirements.

[1] These studies are available only one time annually and may not be repeated in the future.

One-Time Short Quality Assessments

Antimicrobial Susceptibility Testing: Monitoring and Trend Analysis QP211

Introduction

Since antimicrobial resistance has increased steadily and varies by geographic location and patient population, the availability of up-to-date cumulative antimicrobial susceptibility data is crucial. These data are also essential to monitor emerging trends in resistance at the local level to support clinical decision-making, evaluate infection control interventions, inform and participate in antimicrobial stewardship efforts, optimize microbiology susceptibility testing and reporting, and guide Pharmacy and Therapeutics Committee formulary decisions.

Enrollment in this study assists laboratories in meeting the CAP Laboratory Accreditation Program Checklist statement MIC.21946, Cumulative Susceptibility Data, and The Joint Commission Antimicrobial Stewardship Standard, MM 09.01.01.

Objectives

This study will assist laboratory and health care facilities with antimicrobial stewardship by ongoing comparison and trending of cumulative susceptibility rates for common microorganisms within a facility over time and between participating facilities.

Data Collection

New participants will provide cumulative susceptibility data for each year from 2019 to 2021, while continuing participants will provide data for 2021. Susceptibility rate data including the number of isolates tested will be collected for select microorganisms including *Enterobacter cloacae* complex, *Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis, Pseudomonas aeruginosa*, methicillin-susceptible *Staphylococcus aureus* (MSSA) and methicillin-resistant *Staphylococcus aureus* (MRSA), and *Enterococcus* species. Continuing participants may also provide previous data from 2019 to 2020 for MSSA and MRSA. Standardized data collection methods will be used by all participants in accordance with recommended guidelines.

Performance Indicator

- Trend of antimicrobial susceptibility rates for select microorganisms and antibiotics from 2018 to 2021, as applicable

This is a one-time study conducted in the first quarter.

NEW

Laboratory Staffing Ratios QP222

Introduction

Laboratory staff play an important role in the detection, diagnosis, and treatment of disease by performing tests in laboratories. These staff account for two-thirds of direct clinical laboratory costs. This study is designed to produce data that will assist laboratorians in managing those costs and gauging their staffing levels.

Laboratories participating in this study will submit data on their staffing levels for laboratory sections, and may participate in any or all areas including anatomic pathology, chemistry/hematology/immunology, microbiology, molecular pathology, phlebotomy, point-of-care testing, and transfusion medicine. From these levels, staffing ratios will be calculated for these sections relative to managerial staffing and billable tests. Your laboratory's staffing ratios will be compared against those of other institutions participating in this study, and, where applicable, against peer groups with similar billable test profiles.

Enrollment in this study will help laboratory directors address CAP Laboratory Accreditation Program Checklist statement DRA.11300, that requires sufficient numbers of personnel to be available to meet the needs of the laboratory.

Objectives

This study aims to measure staffing levels in different areas of the laboratory, calculate key staffing ratios and levels, and compare all staffing ratios with those of other institutions participating in this study.

Data Collection

Participants will use their laboratory's or institution's revenue and usage reports to obtain billable test counts and staffing measures for the most recently completed fiscal year.

Performance Indicators

- **Anatomic Pathology**
  - Histology blocks/Histology non-management FTE
  - Cytology accessions/Cytology non-management FTE
  - Non-management FTE/Management FTE
- **Chemistry/Hematology/Immunology**
  - Total billable tests/Non-management FTE
  - Non-management FTE/Management FTE
- **Microbiology**
  - Total billable tests/Non-management FTE
  - Non-management FTE/Management FTE
- **Molecular Pathology**
  - Total billable tests/Non-management FTE
  - Non-management FTE/Management FTE
- **Phlebotomy**
  - Total inpatient blood draws/Inpatient phlebotomist FTE
  - Total outpatient blood draws/Outpatient phlebotomist FTE
- **Point-of-Care Testing (POCT)**
  - POCT billable tests/Laboratory FTE overseeing POCT
- **Transfusion Medicine**
  - Crossmatches or type and screens/Non-management FTE
  - Transfused units/Non-management FTE
  - Non-management FTE/Management FTE

This is a one-time study conducted in the second quarter.

NEW

Technical Competency Assessment of Peripheral Blood Smears QPC10/QPC25

Introduction

The widespread use of automated white blood cell (WBC) differential counts and computer generated whole slide imaging has decreased the time that the technical staff dedicates to morphological assessment of blood cells. However, technologists must maintain their morphological skills and laboratories are required to provide education and assess competency in this area on a regular basis.

Objectives

This study will help assess the effectiveness of educational and practical experience policies and procedures dedicated to the laboratory's efforts in maintaining technologist skills in the performance of accurate WBC differential counts and other peripheral blood smear morphological assessments. The evaluation provided will assist in the construction of individual educational programs for the technical staff and show areas that need focused review and improvement. The study will help management meet applicable CLIA, CAP Laboratory Accreditation, and Joint Commission laboratory requirements for personnel competency requirements and consistency of reporting amongst staff.*

Data Collection

A series of online, whole slide images of Wright-Giemsa stained peripheral blood smears using DigitalScope® technology will be available to each participating institution to assess technologists' performance on WBC differential counts and morphology assessment. Technologists will provide information about their continuing education and professional background. Information will be collected from each site regarding their institution's minimum continuing education requirements for their technologists in hematology and relevant procedures and policies related to peripheral blood smear assessment.

Performance Indicators

- Individual technologist score (%) based on a standardized competency assessment method to determine a technologist's ability to identify various WBC types, red blood cell morphology, and platelet morphology in normal and abnormal cases
- Overall laboratory score based on the facility's individual technologist performance(s)

Reports are provided at institution and technologist levels. A summary of responses to the general questions will be provided for participants.

Program Information

To meet your staff technical competency assessment requirements:

- Result forms for up to 10 technologists (QPC10)
- Result forms for up to 25 technologists (QPC25)
- Multiple kits may be purchased to accommodate quantity needed

***Applicable Requirements**

- CLIA personnel requirements (Subpart M, 42 CFR §493.1)
- CAP Laboratory Accreditation Program Checklist statements GEN.55500 Competency Assessment of Testing Personnel
- HEM.34400, consistency of morphologic observation among personnel performing blood cell microscopy at least annually
- The Joint Commission Standards HR. 01.05.03, 01.06.01, and 01.07.01 for training and education, competency, and evaluation of hospital personnel

This is a one-time study conducted in the third quarter.

Technical Competency Assessment of Gram Stains QPD10/QPD25

Introduction

Gram stain is a commonly performed bacterial stain in clinical microbiology laboratories. It is often the starting point guiding microbiological workup and initial clinical diagnosis and therapy. It is important for technologists who read Gram stains to provide an accurate interpretation based on reaction type and microscopic morphology in order to provide presumptive identifications and quantification of bacteria and fungi in clinical specimens.

Objectives

This study will help assess the effectiveness of educational and practical experience policies and procedures dedicated to the laboratory's efforts in maintaining technologist skills in the morphological assessment of Gram stains. Participation in this study will help management assess the technologist's ability to evaluate Gram stains using online, whole slide images. These cases provide a standardized review and evaluation for each technologist. The study will help management meet applicable CLIA, CAP Laboratory Accreditation, and Joint Commission laboratory requirements for personnel competency requirements and consistency of reporting amongst staff.*

Data Collection

A series of online, whole slide images of Gram stained smears using DigitalScope technology will be provided to each participating institution to assess technologists' ability to detect various microorganisms. Technologists will provide information about their work experience related to Gram stains, continuing education, and professional background. Information will be collected from each laboratory site to provide information about their continuing education requirements in microbiology, and relevant laboratory procedures and policies related to Gram stain assessment.

Performance Indicators

- Individual technologist score (%) for each Gram stain case, and overall based on a standardized competency assessment method
- Overall laboratory score based on the facility's individual technologist performance(s)

Reports are provided at institution and technologist levels. A summary of responses to the general questions will be provided for participants.

Program Information

To meet your staff technical competency assessment requirements:

- Result forms for up to 10 technologists (QPD10)
- Result forms for up to 25 technologists (QPD25)
- Multiple kits may be purchased to accommodate quantity needed

***Participation in this study helps laboratories meet:**

- CLIA personnel requirements (Subpart M, 42 CFR §493.1)
- CAP Laboratory Accreditation Program Microbiology Checklist statement MIC.11060, Culture Result Reporting: Personnel performing Gram stains for this purpose are subject to competency assessment
- CAP Laboratory Accreditation Program Microbiology Checklist statement MIC.11350, Morphologic Observation Evaluation: The laboratory evaluates consistency of morphologic observation among personnel performing Gram, trichrome and other organism stains at least annually
- CAP Laboratory Accreditation Program Checklist statement GEN.55500, Competency Assessment of Testing Personnel
- Joint Commission standards HR. 01.05.03, 01.06.01, and 01.07.01 for training and education, competency, and evaluation of hospital personnel

This is a one-time study conducted in the late third quarter.

Programs for Continuous Quality Monitoring

Identify and monitor opportunities for quality improvement over time

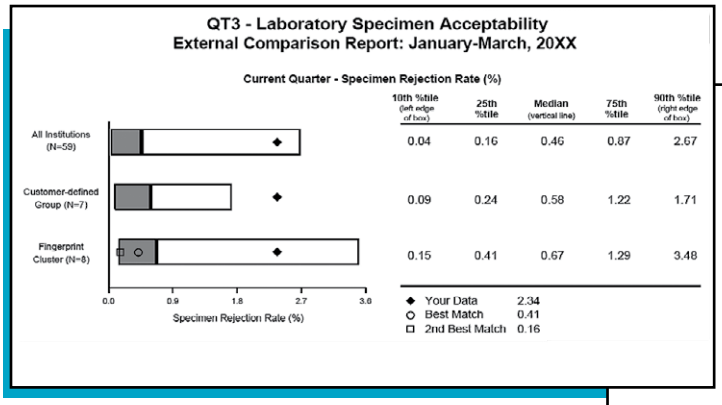
Use established continuous quality monitoring programs to identify opportunities to quantitate your quality improvement measures.

Evaluate quality improvements

Measure the effectiveness and impact of implemented changes in key processes. The individual reports include performance of quality indicators over time, benchmarking information, trends, and suggested areas for improvement.

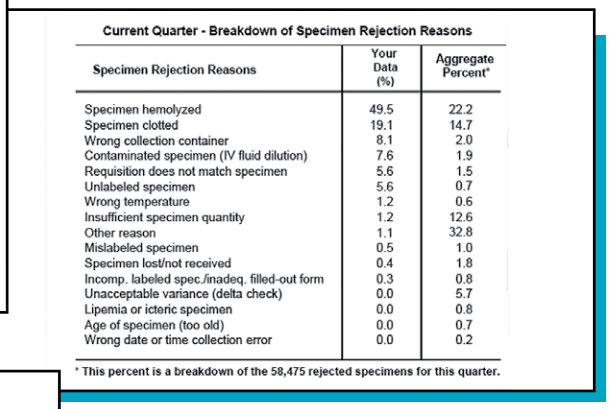
Step 1:

Establish realistic benchmarks by comparing your laboratory to others like yours.



Step 2:

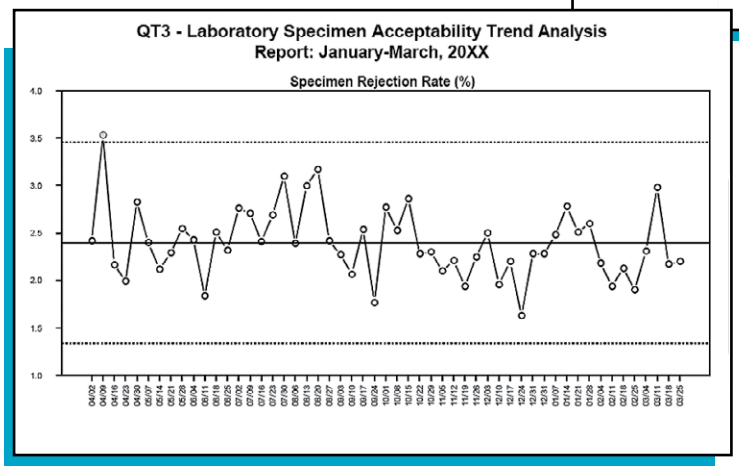
Identify improvement opportunities.



Current Quarter - Breakdown of Specimen Rejection Reasons

Specimen Rejection Reasons	Your Data (%)	Aggregate Percent*
Specimen hemolyzed	49.5	22.2
Specimen clotted	19.1	14.7
Wrong collection container	8.1	2.0
Contaminated specimen (IV fluid dilution)	7.6	1.9
Requisition does not match specimen	5.6	1.5
Unlabeled specimen	5.6	0.7
Wrong temperature	1.2	0.6
Insufficient specimen quantity	1.2	12.6
Other reason	1.1	32.8
Mislabeled specimen	0.5	1.0
Specimen lost/not received	0.4	1.8
Incomp. labeled spec./inadeq. filled-out form	0.3	0.8
Unacceptable variance (delta check)	0.0	5.7
Lipemia or icteric specimen	0.0	0.8
Age of specimen (too old)	0.0	0.7
Wrong date or time collection error	0.0	0.2

* This percent is a breakdown of the 58,475 rejected specimens for this quarter.



Step 3:

Monitor improvement over time to ensure accurate results, patient safety, and quality patient care.

Participants in continuous quality monitoring programs receive:

- User Guide
- Templates and instructions for data collection
- Input forms for data collection sent quarterly
- Quarterly reports that include fingerprint clusters, customer-defined groups, and all institution comparisons
- Peer directory

Continuous quality monitoring activities meet the American Board of Pathology Continuing Certification (CC) requirements.

Clinical Pathology Monitors

Patient Identification Accuracy QT1

In order to report accurate laboratory results and meet The Joint Commission National Patient Safety Goal #1 for the Laboratory: "Improve the accuracy of patient identification," institutions must properly identify patients. Since most laboratories perform testing away from the patient, patient identification, labeling of specimens, and coordination with test requisitions must be performed accurately and completely. By continuously monitoring for wristband errors, participants can promptly identify and correct problems that may interfere with patient care services. Use this monitor to help meet CAP Laboratory Accreditation Program General Checklist statements GEN.20316, GEN.40490, and GEN.40825.

Objectives

Assess the incidence of wristband errors within individual institutions, compare performance between participating institutions, and identify improvement opportunities.

Data Collection

On six predetermined days per month, participants will monitor patient wristband identification for all phlebotomies performed at their institution. Phlebotomists will tally the total number of wristbands checked, the number of errors found, and the types of wristband errors. This monitor includes all routinely wristbanded patients. Include emergency department patients only if the emergency department routinely applies wristbands to these patients.

Performance Indicator

- Wristband error rate (%)

Performance Breakdown

- Breakdown of wristband error types (%)

Blood Culture Contamination QT2

Despite advances in blood culture practices and technology, false-positive blood culture results due to contaminants continue to be a critical problem. Blood culture contamination rate, the primary indicator of preanalytic performance in microbiology, is associated with increased length of hospital stay, additional expense, and the administration of unnecessary antibiotics.

The CAP and other accrediting organizations require you to monitor and evaluate key indicators of quality for improvement opportunities. Use this monitor to help meet CAP Laboratory Accreditation Checklist statements MIC.22630 and MIC.22635: "The laboratory must determine and regularly review the number of contaminated cultures. Tracking the contamination rate and providing feedback to units and persons drawing cultures is one method that has been shown to reduce contamination rates." This will also help laboratories meet The Joint Commission Standard QSA 04.07.01 EP3.

Objective

Determine the rate of blood culture contamination using standardized criteria for classifying contaminants.

Data Collection

On a monthly basis, participants will tabulate the total number of blood cultures processed and the total number of contaminated blood cultures. Blood cultures from neonatal patients are tabulated separately. For the purposes of this study, participants will consider a blood culture to be contaminated if they find one or more of the following organisms in only one of a series of blood culture specimens: Coagulase-negative *Staphylococcus; Micrococcus;* Alpha-hemolytic viridans group streptococci; *Propionibacterium acnes*; *Corynebacterium* sp. (diptheroids); or *Bacillus* sp. Participants have the option to monitor institution-specific subgroups, for example, a specific department or patient population.

Performance Indicators

- Neonatal contamination rate (%)
- Other contamination rate (%)
- Overall contamination rate (%)

Look for your input forms approximately two weeks prior to the quarter.

Laboratory Specimen Acceptability QT3

A substantial amount of rework, diagnostic and therapeutic delay, and patient inconvenience can result from specimen rejection. Patient redraws may result from unlabeled, mislabeled, and incompletely labeled specimens; clotted and/or hemolyzed specimens; or insufficient specimen quantity. By continuously monitoring specimen acceptability, collection, and transport, laboratories can promptly identify and correct problems. Enrollment in this study may assist the laboratory in monitoring compliance with CAP Laboratory Accreditation Program General Checklist statement GEN.40825: "There is a system to positively identify all patient specimens, specimen types, and aliquots at all times."

Objective

Identify and characterize unacceptable blood specimens that are submitted to the chemistry and hematology/coagulation sections of the clinical laboratory for testing.

Data Collection

This monitor includes all blood specimens submitted for testing to the chemistry and hematology departments of the clinical laboratory. On a weekly basis, participants will record the total number of specimens received, the number of rejected specimens, and the primary reason each specimen was rejected.

Performance Indicator

- Specimen rejection rate (%)

Performance Breakdown

- Breakdown of reasons for rejection (%)

In-Date Blood Product Wastage QT4

Blood for transfusion is a precious resource. At a minimum, wastage of blood that is not out-of-date represents a financial loss to the health care system. More ominously, systemic wastage of blood may reflect an environment of care that is out of control and may pose risks to patient safety.

Enrollment in this program assists laboratories in meeting regulatory requirements as follows:

- CAP Laboratory Accreditation Program Checklist statements: TRM.40875 that requires the transfusion service medical director to monitor and audit transfusion practices to ensure the appropriate use of blood; TRM.30800, Disposition Records; and TRM.32275, Component Records, regarding recording the use of each blood or component product from receipt to final disposition.
- The Joint Commission Standards QSA.05.02.01, adequate blood and blood components; QSA.05.03.03, requirements for policies and procedures for returning unused blood products to blood transfusion services; and QSA.05.22.01, records of blood product disposition.
- AABB Standards for Blood Banks and Transfusion Services assessment 8.2 that requires transfusing facilities to have a peer-review program that monitors transfusion practices for blood components.

Objective

Compare the rates of blood product wastage (ie, units discarded in-date) in participating hospitals and track rates of improvement over time.

Data Collection

On a monthly basis, participants will use blood bank records to obtain information on the total number of units transfused for each type of blood component. Participants will track the number and type of blood units that are wasted in-date and the circumstances of wastage. This monitor includes the following types of blood components: whole blood (allogeneic), red blood cells (allogeneic), frozen plasma, platelet concentrates, single donor platelets, and cryoprecipitate.

Performance Indicators

- Overall blood wastage rate (%)
- Wastage rates by blood component type (%)

Performance Breakdown

- Breakdown of circumstances of wastage (%)

Look for your input forms approximately two weeks prior to the quarter.

Satisfaction with Outpatient Specimen Collection QT7

Specimen collection is one of the few areas of laboratory medicine that involves direct outpatient contact. As a result, patient satisfaction with this service is a vital indicator of quality laboratory performance. The CAP's Laboratory Accreditation Program requires measurement of patient satisfaction with laboratory services (Checklist statement GEN.20335). Use this monitor to help meet this requirement.

Objective

Assess patient satisfaction with outpatient phlebotomy services by measuring patients' assessments of laboratory service hours, waiting time, comfort level, professionalism and courtesy, and privacy.

Data Collection

On a monthly basis, participants will provide copies of a standardized questionnaire in English and Spanish to a minimum of 25 outpatients (maximum of 99 outpatients) using predetermined data collection criteria. This monitor includes any outpatient undergoing venipuncture. This monitor excludes patients seen in the emergency department, ambulatory surgery area, urgent care facility, chest pain center, 23-hour short-stay facility, employee health department, outpatient health screening fair/promotion, dialysis center, nursing home, or extended care facility.

Performance Indicators

- Satisfaction scores and satisfaction rates (% of patients rating 4 or 5) for the following categories:
  - Overall experience
  - Waiting time
  - Patient comfort
  - Professionalism and courtesy
  - Patient privacy
  - Laboratory hours of operation

Stat Test Turnaround Time Outliers QT8

The stat test turnaround time (TAT) outlier rate, expressed as a percentage of tests missing target reporting times, is a measure of outcomes that evaluates how well the laboratory meets patient and clinician needs. This monitor helps meet CAP Laboratory Accreditation Program Checklist statement GEN.20316: "The QM program includes monitoring key indicators of quality in the preanalytic, analytic, and postanalytic phases."

Objective

Monitor the frequency that stat test TAT intervals exceed institutional stat test TAT expectations.

Data Collection

Before beginning data collection, participants will establish a specimen receipt-to-report deadline for emergency department (ED) stat potassium tests. On six predetermined days per month, participants will monitor the TAT of up to 10 randomly selected ED stat potassium tests on each of three, eight-hour shifts (up to 180 tests per month) and track the number of ED stat potassium results reported later than the established reporting deadline. This monitor includes stat potassium tests ordered as part of a panel and excludes stat potassium levels that are requested on body fluids other than blood, as part of timed or protocol studies, or after the specimen arrives in the laboratory.

Performance Indicator

- Stat test TAT outlier rate (%)

Performance Breakdowns

- Breakdown of outliers by shift (%)
- Breakdown of outliers by day of week (%)

Look for your input forms approximately two weeks prior to the quarter.

Critical Values Reporting QT10

Laboratories commonly refer to critical values as results requiring immediate notification to the physician or caregiver for necessary patient evaluation or treatment. Regulations from agencies and accreditors such as the CMS, The Joint Commission (National Patient Safety Goal NPSG.02.03.01), and the CAP Laboratory Accreditation Program (Checklist statement GEN.20316, COM.30000, COM.30100) mandate that laboratories develop and implement an alert system for critical values. Use this monitor to document compliance with your laboratory's alert plan.

Objective

Evaluate the documentation of successful critical values reporting in the general laboratory for inpatients and outpatients.

Data Collection

On a monthly basis, participants will evaluate 120 inpatient and 120 outpatient critical values. Data collection will include general chemistry, hematology, and coagulation analytes on the critical values list. Retrospectively, participants will record the total number of critical values monitored and the number with documentation of successful notification. In addition, participants will provide the number of critical values that were not communicated within three hours, the number of failed notifications due to laboratory oversight, and the number of successful notifications to licensed caregivers. This monitor will exclude critical values for cardiac markers, drugs of abuse, therapeutic drug levels, urinalysis, blood gases, point-of-care tests, and tests performed at reference laboratories.

Performance Indicators

- Total critical values reporting rate (%)
- Inpatient critical values reporting rate (%)
- Outpatient critical values reporting rate (%)
- Failed notification (<3 hours) rate (%)

Look for your input forms approximately two weeks prior to the quarter.

Troponin Turnaround Times QT15

Patients presenting to the emergency department (ED) with chest pain must be evaluated quickly. Rapid serum troponin measurement is an important part of ED practice that can provide decisive information for patient management. Reducing delays in troponin testing has been reported to result in shorter length of stay in the ED and more rapid initiation of anti-ischemic treatment. EDs and chest pain centers should, therefore, have effective procedures for ensuring optimal turnaround time (TAT) for troponin testing and a process for ongoing monitoring to ensure that performance meets expectations.

QT15 has multiple time intervals to help pinpoint process time challenges. Laboratories may use this monitor to help meet CAP Laboratory Accreditation Program Checklist statement GEN.20316 QM Indicators of Quality. The American College of Cardiology and the American Heart Association recommend troponin as the preferred diagnostic biomarker in their Acute Coronary Syndromes guideline.

Objectives

This study will assist participating laboratories to determine and monitor:

- The median TATs for processes from order time through result availability, with up to five time intervals within the total testing process
- The percent compliance for troponin results with their institution's established deadline

Data Collection

Six days per month, collect data from nine patients presenting to the ED with chest pain and tested for troponin level. Data includes time of troponin test order, specimen collection, laboratory receipt, and result availability. Participants are not required to provide data from each TAT component. Participants will select TAT metrics that they wish to monitor, with the option to monitor all metrics.

Participants will also complete a questionnaire about clinical and laboratory practices related to troponin testing.

Performance Indicators

Median TATs for the following time intervals:

- Test order to specimen collection
- Specimen collection to laboratory receipt
- Laboratory receipt to result availability
- Specimen collection to result availability
- Test order to result availability

Compliance (%) with institutional threshold for the following time intervals:

- Specimen collection to result availability
- Test order to result availability

Look for your input forms approximately two weeks prior to the quarter.

Corrected Results QT16

The CAP developed this monitor in recognition of the importance of timely detection and correction of erroneous laboratory results. Accuracy in laboratory results is critical to the effectiveness of a physician's plan of care for a patient. An erroneous result can delay or alter patient treatment; therefore, detection of erroneous results should be a priority in every laboratory and should be monitored as a key quality indicator. Help measure your compliance with CLIA 493.1299, Postanalytic Systems Quality Assessment, and help meet CAP Laboratory Accreditation Program Checklist statement GEN.20316 with this monitor.

Objective

Monitor the number of corrected test results within individual institutions and compare performance with that of all institutions and those institutions similar to yours.

Data Collection

On a monthly basis, participants will monitor the number of corrected test results and the total number of billable tests for that month. Include test results for all patients in all care settings with the following exclusions: anatomic pathology tests, narrative physician-interpreted tests (eg, bone marrow biopsies and peripheral smear reports), and point-of-care tests.

Performance Indicator

- Test result correction rate (per 10,000 billable tests)

Outpatient Order Entry Errors QT17

Order accuracy bears an obvious relationship to the quality of laboratory testing. When the laboratory fails to complete a requested test, it delays the diagnostic evaluation, consumes resources, causes patient inconvenience, and may prolong therapy. When the laboratory completes a test that was not requested, the cost of care increases, patients may be subjected to unnecessary phlebotomy, and laboratory efficiency declines. Use this monitor to help meet CAP Laboratory Accreditation Program Checklist statement GEN.20316 for test order accuracy and meet The Joint Commission Standard DC.01.02.01: The laboratory performs testing based on written laboratory test orders.

Objective

Measure the incidence of incorrectly interpreted and entered outpatient physician test orders into the laboratory information system, compare performance across institutions, and track performance over time.

Data Collection

On six preselected weekdays per month, participants will compare eight outpatient requisitions or order sheets to the orders entered into the laboratory's information system to determine if any order entry errors occurred.

This monitor includes test order review from ambulatory outpatients seen in offices and clinics operated by your laboratory services, private physician offices, nursing homes, extended care facilities, and free-standing phlebotomy areas. Also included are send-out tests, chemistry, hematology, microbiology, immunology, toxicology, and urinalysis tests on outpatients. Order entry error categories include requesting physician errors, incorrect and extra test orders, missing test orders and diagnosis codes, test priority errors, and copy or fax result errors.

This monitor excludes tests performed in transfusion medicine or anatomic pathology and also excludes tests from the following patient care settings: inpatient, emergency department, ambulatory surgery, urgent care, chest pain center, 23-hour short-stay facility, employee health department, outpatient screening fair/promotion, and dialysis center.

Performance Indicators

- Overall outpatient order entry error rate (%)
- Order entry error rates by type (%)

Performance Breakdown

- Breakdown of error types (%)

Look for your input forms approximately two weeks prior to the quarter.

Anatomic Pathology Monitor

Gynecologic Cytology Outcomes: Biopsy Correlation Performance QT5

The correlation of cervicovaginal cytology (Pap test) findings with cervical biopsy results is a significant part of the cytopathology laboratory's quality assurance program. By monitoring this correlation, the laboratory can identify and address potential problems requiring improvement, thereby ensuring better patient results. This study helps laboratories meet CAP Laboratory Accreditation Program Cytopathology Checklist statements CYP.01900, CYP.07543, and CYP.07600 on cytologic/histologic correlation, and The Joint Commission Standard QSA.08.06.03: The cytology laboratory has a process to correlate cytologic interpretations with the corresponding histologic finding.

Objective

Quantify the correlation between the findings of cervicovaginal cytology and corresponding histologic material.

Data Collection

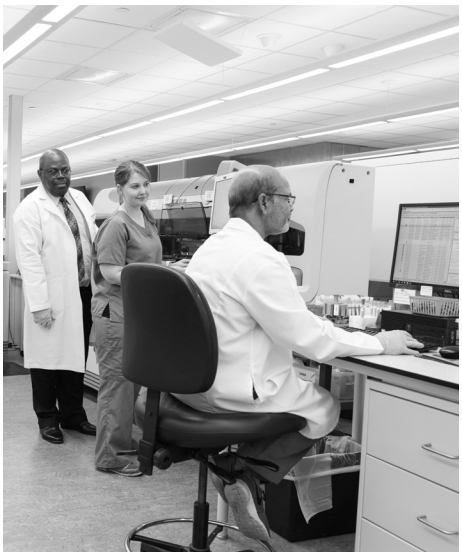
On a monthly basis, participants will record the number of true-positive, false-positive, and false-negative cytology-biopsy correlations. The false-negative correlations will be classified into four error categories: screening errors, interpretive errors, screening and interpretive errors, and adequacy determination errors. Participants will also record the biopsy diagnoses for Pap tests with an interpretation of atypical squamous cells (ASC-US and ASC-H) or atypical glandular cells (AGC). This monitor includes cervical biopsy specimens submitted to the laboratory that have a corresponding satisfactory or satisfactory but limited Pap test within three months of the biopsy.

Performance Indicators

- Predictive value of positive cytology (%)
- Sensitivity (%)
- Screening/interpretation sensitivity (%)
- Sampling sensitivity (%)
- Percent positive for ASC-US interpretations
- Percent positive for ASC-H interpretations
- Percent positive for AGC interpretations

Look for your input forms approximately two weeks prior to the quarter.

4 Quality Cross Check



Test multiple instruments at one time—Quality Cross Check is not PT and not subject to CMS restrictions.

- Monitor performance of SARS-CoV-2 testing across multiple instruments with Quality Cross Check for molecular testing (COV2Q), antigen testing (COVAQ), and serological testing (COVSQ).
- Simplify biannual instrument comparability studies—receive customized reports that include peer group evaluations and instrument comparability statistics.

New Programs NEW

Discontinued Programs

Quality Cross Check—Hematology (FH6Q)

Perform instrument comparability and stay in compliance

Quality Cross Check is a convenient solution to monitor instrument performance and assess comparability across multiple instruments in your laboratory and to identify potential issues before they affect patient results.

How It Works

- Receive three challenges in each of two mailings a year.
- Report up to three instruments for each challenge (and report up to 30 instruments for Quality Cross Check—Whole Blood Glucose).
- Receive a custom report package that includes peer group comparison and instrument comparability statistics for each reported analyte.

Stay in Compliance

In August 2015, the Centers for Medicare & Medicaid Services (CMS) reiterated that laboratories are not permitted to test proficiency testing (PT) samples on multiple instruments unless that is how the laboratory tests patient specimens.

The CMS interpretation was expanded beyond regulated analytes to include analytes not listed in Subpart I of the Clinical Laboratory Improvement Amendments regulations, including waived methods.

Quality Cross Check complements your existing CAP programs to monitor multiple instrument performance and is compliant with the CMS directive.

Monitoring Performance of Glucose Meters

Beginning in 2017, PT for waived whole blood glucose on glucose meters was no longer required for laboratories accredited by the CAP. Laboratories are required to perform alternative performance assessment.

In response to this change, the CAP introduced the Quality Cross Check—Whole Blood Glucose program (WBGQ). Participants in this program will enjoy the benefits of Quality Cross Check and have the ability to report up to 30 instruments for each challenge.

General Chemistry and Therapeutic Drug Monitoring

Quality Cross Check—Chemistry and Therapeutic Drug Monitoring CZQ

Analyte	Program Code	Challenges per Shipment
	CZQ	
See program CZ analytes on pages 56-58	▮	3

This program does not meet regulatory requirements for proficiency testing; see program CZ on pages 56-58. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 5.0-mL liquid serum specimens in duplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Quality Cross Check—B-Type Natriuretic Peptides BNPQ

Analyte	Program Code	Challenges per Shipment
	BNPQ	
BNP	▮	3
NT-proBNP	▮	3

This program does not meet regulatory requirements for proficiency testing; see program BNP or BNP5 on page 61. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 1.5-mL liquid specimens
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Quality Cross Check—Whole Blood Glucose WBGQ

Analyte	Program Code	Challenges per Shipment
	WBGQ	
Glucose	▮	3

The CAP Accreditation Program requires all accredited laboratories performing waived whole blood glucose testing using glucose meters to perform alternative performance assessment. This program can be used to meet alternative performance assessment requirements.

Program Information

- Three 2.0-mL whole blood specimens
- Report up to 30 instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Quality Cross Check—Body Fluid Chemistry FLDQ

Analyte	Program Code	Challenges per Shipment
	FLDQ	
Albumin	▮	3
Amylase	▮	3
CA19-9	▮	1
Carcinoembryonic antigen (CEA)	▮	1
Cholesterol	▮	3
Creatinine	▮	3
Glucose	▮	3
Lactate	▮	3
Lactate dehydrogenase (LD)	▮	3
pH	▮	3
Protein, total	▮	3
Triglycerides	▮	3
Urea nitrogen	▮	1

This program does not meet regulatory requirements for proficiency testing; see program FLD on page 74. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 3.0-mL simulated liquid body fluid specimens in duplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Quality Cross Check—Hemoglobin A_{1c} GHQ

Analyte	Program Code	Challenges per Shipment
	GHQ	
Hemoglobin A_{1c}	▮	3

This program does not meet regulatory requirements for proficiency testing; see program GH5 on page 65. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 0.8-mL previously frozen liquid specimens in triplicate
- Report up to three instruments
- Two shipments per year

Quality Cross Check—Cardiac Markers CRTQ

Analyte	Program Code	Challenges per Shipment
	CRTQ	
CK-MB, immunochemical	▮	3
Myoglobin	▮	3
Troponin I	▮	3

This program does not meet regulatory requirements for proficiency testing; see program CRT on page 62. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 2.0-mL liquid serum specimens
- Report up to three instruments
- Two shipments per year

Endocrinology

Quality Cross Check—Parathyroid Hormone PTHQ

Analyte	Program Code	Challenges per Shipment
	PTHQ	
Parathyroid hormone (PTH)	▮	3

This program does not meet regulatory requirements for proficiency testing; see program ING on page 88. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 5.0-mL lyophilized serum specimens in duplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

So You're Going to Collect a Blood Specimen (PUB225)

Up to 70% of laboratory errors occur prior to sample analysis and testing. Ensure everyone on your team is equipped to procure a quality blood specimen with this modern update to the classic reference guide.

- Step-by-step instructions for venipuncture, skin puncture, and infant heelstick
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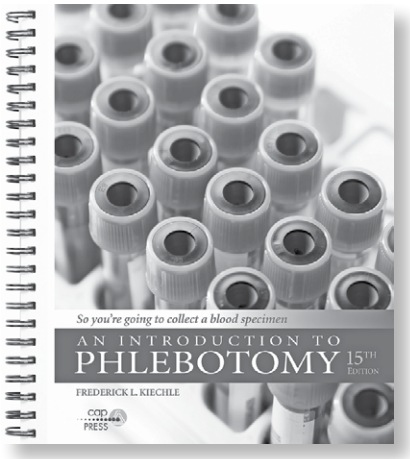

Item number: PUB225
Spiral bound; 84 pages;
30+ images and tables; 2017

Blood Gas, Critical Care, and Oximetry

Quality Cross Check—Blood Oximetry SOQ

Analyte	Program Code	Challenges per Shipment
	SOQ	
Carboxyhemoglobin	▮	3
Hematocrit, estimated	▮	3
Hemoglobin, total	▮	3
Methemoglobin	▮	3
Oxyhemoglobin	▮	3

This program does not meet regulatory requirements for proficency testing; see program SO on page 96. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 1.2-mL liquid specimens in triplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Quality Cross Check—Blood Gas AQQ, AQ2Q, AQ3Q, AQ4Q

Analyte	Program Code				Challenges per Shipment
	AQQ	AQ2Q	AQ3Q	AQ4Q	
Calcium, ionized	▮	▮	▮	▮	3
Chloride	▮	▮	▮	▮	3
Hematocrit	▮	▮	▮	▮	3
Hemoglobin, estimated	▮	▮	▮	▮	3
Lactate	▮	▮	▮	▮	3
Magnesium, ionized	▮	▮			3
pCO_2	▮	▮	▮	▮	3
pH	▮	▮	▮	▮	3
pO_2	▮	▮	▮	▮	3
Potassium	▮	▮	▮	▮	3
Sodium	▮	▮	▮	▮	3
Creatinine		▮		▮	3
Glucose		▮		▮	3
Urea nitrogen (BUN)		▮		▮	3

It is not appropriate to report hemoglobin or hematocrit by co-oximetry in this program.

These programs do not meet regulatory requirements for proficiency testing; see programs AQ and AQ2-AQ4 on page 94. For additional information about the Quality Cross Check program, see page 40.

Program Information

- AQQ, AQ2Q - Three 2.5-mL specimens in triplicate and three 2.5-mL specimens for hematocrit testing in triplicate; appropriate for all methods except i-STAT®
- AQ3Q, AQ4Q - Three 1.7-mL specimens in triplicate for i-STAT methods only
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Hematology and Clinical Microscopy

Quality Cross Check—Hematology FH3Q, FH4Q, FH9Q, FH13Q

Analyte/Procedure	Program Code				Challenges per Shipment
	FH3Q	FH4Q	FH9Q	FH13Q NEW	
Hematocrit	▮	▮	▮	▮	3
Hemoglobin	▮	▮	▮	▮	3
Immature granulocyte parameter			▮		3
Immature platelet function (IPF)%			▮		3
Large unstained cells (LUC)		▮			3
MCV, MCH, MCHC	▮	▮	▮	▮	3
MPV	▮	▮	▮	▮	3
Nucleated red blood cell count (nRBC)	▮		▮	▮	3
Platelet count	▮	▮	▮	▮	3
RDW	▮	▮	▮	▮	3
Red blood cell count	▮	▮	▮	▮	3
WBC differential	▮	▮	▮	▮	3
White blood cell count	▮	▮	▮	▮	3

These programs do not meet regulatory requirements for proficiency testing; see the FH Series on page 138. For additional information about the Quality Cross Check program, see page 40.

Program Information

- FH3Q, FH4Q, FH9Q, FH13Q - Three 2.5-mL whole blood specimens with pierceable caps
- Report up to three instruments
- For method compatibility, see instrument matrix on page 140
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Quality Cross Check—Reticulocyte RTQ, RT3Q, RT4Q

Instrument/Method	Program Code			Challenges per Shipment
	RTQ	RT3Q	RT4Q	
Abbott Alinity hq, Abbott Cell-Dyn 4000, Sapphire, Siemens ADVIA 120/2120, and all other automated and manual methods	▮			3
Coulter Gen-S™, HmX, LH500, LH700 series, MAXM, STKS, UniCel DxH series		▮		3
Sysmex XE-2100, XE-2100C, XE-2100D, XE-2100DC, XE-2100L, XE-5000, XN-L series, XN-series (includes RL App), XT-2000i, XT-4000i			▮	3

Program Information

- RTQ - Three 1.0-mL stabilized red blood cell specimens
- RT3Q - Three 3.0-mL stabilized red blood cell specimens
- RT4Q - Three 2.0-mL stabilized red blood cell specimens
- Includes percentage and absolute result reporting
- Report up to three instruments
- Two shipments per year

These programs do not meet regulatory requirements for proficiency testing; see the RT Series on page 143. For additional information about the Quality Cross Check program, see page 40.

Quality Cross Check—Urinalysis CMQ

Analyte	Program Code	Challenges per Shipment
	CMQ	
Bilirubin	▮	3
Blood or hemoglobin	▮	3
Glucose	▮	3
hCG urine, qualitative	▮	3
Ketones	▮	3
Leukocyte esterase	▮	3
Nitrite	▮	3
Osmolality	▮	3
pH	▮	3
Protein, qualitative	▮	3
Reducing substances	▮	3
Specific gravity	▮	3
Urobilinogen	▮	3

Program Information

- Three 10.0-mL liquid urine specimens for use with all instruments
- Report up to three instruments
- Two shipments per year

This program does not meet regulatory requirements for proficiency testing; see programs CMP and CMP1 on page 148. For additional information about the Quality Cross Check program, see page 40.

Quality Cross Check—Occult Blood OCBQ

Analyte	Program Code	Challenges per Shipment
	OCBQ	
Occult blood	▮	3

This program does not meet regulatory requirements for proficiency testing; see program OCB on page 153. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 2.0-mL simulated fecal specimens
- Report up to three instruments
- Two shipments per year

Coagulation

Quality Cross Check—Coagulation CGLQ

Analyte	Program Code	Challenges per Shipment
	CGLQ	
Activated partial thromboplastin time	▮	3
Fibrinogen	▮	3
International normalized ratio (INR)	▮	3
Prothrombin time	▮	3
D-dimer	▮	2
Fibrin(ogen) degradation products, plasma	▮	1
Fibrin(ogen) degradation products, serum	▮	1

This program does not meet regulatory requirements for proficiency testing; see program CGL on page 162. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 1.0-mL lyophilized plasma specimens in triplicate, two 1.0-mL lyophilized plasma specimens, and one 2.0-mL serum specimen
- Report up to three instruments
- Two shipments per year

Quality Cross Check—Activated Clotting Time Series CTQ, CT1Q, CT2Q, CT3Q, CT5Q

Instrument/Cartridge	Program Code					Challenges per Shipment
	CTQ	CT1Q	CT2Q	CT3Q	CT5Q	
Helena Actalyke®	▮					3
ITC Hemochron® CA510/FTCA510	▮					3
ITC Hemochron FTK-ACT	▮					3
ITC Hemochron Jr. Signature/ACT+				▮		3
ITC Hemochron Jr. Signature/ACT-LR			▮			3
ITC Hemochron P214/P215	▮					3
i-STAT Celite® and Kaolin ACT					▮	3
Medtronic HemoTec ACT/ACTII/ACT Plus HR-ACT		▮				3
Medtronic HemoTec ACT/ACTII/ACT Plus LR-ACT		▮				3
Medtronic HemoTec ACT/ACTII/ACT Plus R-ACT		▮				3
Medtronic Hepcon HMS Plus		▮				3

These programs do not meet regulatory requirements for proficiency testing; see programs CT-CT3 and CT5 on page 166. For additional information about the Quality Cross Check program, see page 40.

Program Information

- CTQ - Three 3.0-mL lyophilized whole blood specimens in triplicate with corresponding diluents
- CT1Q - Three 1.7-mL lyophilized whole blood specimens in triplicate with corresponding diluents
- CT2Q - Three 0.5-mL lyophilized whole blood/diluent ampules in triplicate
- CT3Q - Three 0.5-mL lyophilized whole blood/diluent ampules in triplicate
- CT5Q - Three 1.7-mL lyophilized whole blood specimens in triplicate with corresponding diluents
- Report up to three instruments
- Two shipments per year

Microbiology

Quality Cross Check—SARS-CoV-2 Molecular COV2Q

Analyte	Program Code	Challenges per Shipment
	COV2Q	
SARS-CoV-2	▮	3

This program does not meet regulatory requirements for proficiency testing; see program COV2 on page 201. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 3.2-mL non-infectious liquid specimens that contain the whole SARS-CoV-2 genome
- Designed for molecular techniques
- Report up to three instruments
- Two shipments per year

Quality Cross Check—SARS-CoV-2 Antigen COVAQ

Analyte	Program Code	Challenges per Shipment
	COVAQ	
SARS-CoV-2 Antigen	▮	3

This program does not meet regulatory requirements for proficiency testing; see program COVAG on page 201. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 0.5-mL simulated respiratory specimens in triplicate
- Report up to three instruments
- Two shipments per year

Quality Cross Check—SARS-CoV-2 Serology COVSQ

Analyte	Program Code	Challenges per Shipment
	COVSQ	
SARS-CoV-2 antibodies (Total, IgG, IgM)	▮	3

This program does not meet regulatory requirements for proficiency testing; see program COVS on page 220. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 1.0-mL serum specimens
- Report up to three instruments
- Two shipments per year

Transfusion Medicine

Quality Cross Check—Transfusion Medicine JATQ		
Procedure	**Program Code**	**Challenges per Shipment**
	JATQ	
ABO grouping	▮	3
Antibody detection	▮	3
Rh typing	▮	3

This program does not meet regulatory requirements for proficiency testing; see program JAT on page 229. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 6.0-mL 13% -17% whole blood specimens
- May be used with automated and manual procedures
- Two shipments per year

Transfusion Medicine: A Compendium of Educational Cases (PUB228)

Based on more than 10 years of educational material used in proficiency testing from the CAP Transfusion, Apheresis, and Cellular Therapy Committee, this newest book on transfusion medicine consists of 20 cases with multiple-choice questions and answers. Topics covered reflect clinical cases as well as hot topics in transfusion medicine leveraging the clinical experience of 19 highly regarded transfusion medicine experts, all leaders in the field.

Contents include:

- Blood components including plasma, platelets, and red blood cells
- Neonatal/peripartum transfusion medicine
- Special situations such as hemolysis and transplantation
- Regulatory issues

Add Transfusion Medicine: A Compendium of Educational Cases (PUB228) to your order.

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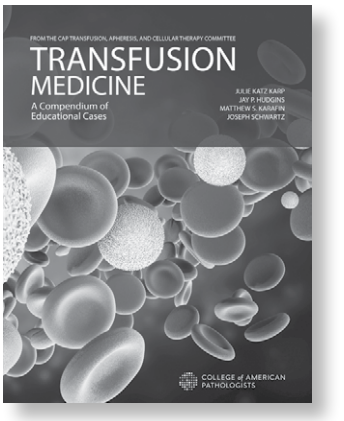


Item number: PUB228
Softcover; 90 pages; 2020

5 Point-of-Care Programs

Keep your point-of-care (POC) instruments and staff operating at peak performance.

- Improve waived test results with POC Competency Challenges that evaluate instrument and method performance, troubleshoot issues, assess staff competency, and provide training information.
- Gain insights with the Point-of-Care Testing Toolkit, an ebook resource for all members of the team.

Point-of-Care Programs

POC Competency Challenges help POC coordinators streamline operator education (initial training and ongoing competency). These programs include standardized specimens that can not only be used to train operators and assess competency, but also to evaluate/troubleshoot instrument and method performance for waived and non-waived tests.

Expected results will be provided. These programs are not proficiency testing programs and participants will not return results to the CAP.

POC Competency Challenges may have limited availability and stability.

POC Competency Challenges POC1, POC2, POC3, POC4

Program Name	Program Code				Challenges per Shipment
	POC1	POC2	POC3	POC4	
hCG Competency	▮				10
Glucose Competency		▮			10
Urine Dipstick Competency			▮		10
Strep Screen Competency				▮	10

Program Information

- POC1 - One positive 10.0-mL liquid urine specimen
- POC2 - One abnormal 2.0-mL whole blood specimen
- POC3 - One abnormal 10.0-mL liquid urine specimen
- POC4 - One 1.0-mL positive liquid specimen
- Each program provides material to test up to 10 staff
- Shipments available upon request

POC Competency Challenges POC6, POC7, POC8, POC9

Program Name	Program Code				Challenges per Shipment
	POC6	POC7	POC8	POC9	
PT/INR, CoaguChek XS Plus and XS Pro Competency	▮				10
Waived Chemistry, Glucose, and Hemoglobin Competency		▮			10
Influenza A/B Antigen Detection Competency			▮		10
Fecal Occult Blood Competency				▮	10

Program Information

- POC6 - One abnormal 0.3-mL lyophilized plasma specimen (five vials) and five corresponding diluents
- POC7 - One abnormal 2.5-mL whole blood specimen compatible with the HemoCue® B, HemoCue 201, and Stanbio HemoPoint® H2 instruments
- POC8 - One 1.5-mL positive liquid specimen for influenza A; one 1.5-mL positive liquid specimen for influenza B
- POC9 - One positive 2.0-mL fecal specimen
- Each program provides material to test up to 10 staff
- Shipments available upon request

POC Competency Challenges POC10, POC11, POC12				
Program Name	**Program Code**			**Challenges per Shipment**
	POC10	**POC11**	**POC12**	
Blood Gases Competency	▮			10
Blood Gases, i-STAT® Competency		▮		10
Plasma Cardiac Markers Competency			▮	10

Program Information

- POC10 - One abnormal 2.5-mL aqueous blood gas specimen (10 vials) and one 2.5-mL hematocrit/ hemoglobin specimen (10 vials)
- POC11 - One abnormal 2.5-mL aqueous specimen (10 vials) for blood gas and hematocrit/hemoglobin testing
- POC12 - One 1.5-mL plasma specimen (two vials); compatible with plasma-based tests, such as Alere Triage® and i-STAT instruments
- Each program provides material to test up to 10 staff
- Shipments available upon request

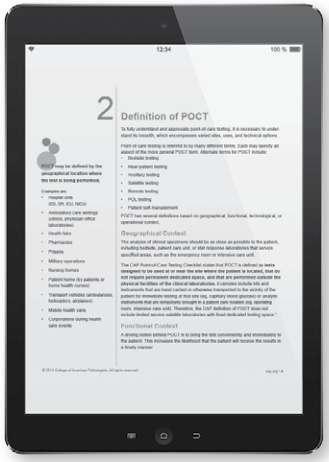
Guide your point-of-care testing with confidence.

Implementing point-of-care testing (POCT) requires a systematic approach that involves all stakeholders, and this toolkit serves as a resource for any member of the POCT team—from those who want to learn more to those who have responsibility to direct others. Pathologists may also use the toolkit to guide other members of their POCT teams, including POCT coordinators and medical technologists who are involved in POCT.

The toolkit covers:

- POCT advantages and disadvantages
- Current and projected technology
- Pathologist, laboratory director, and POCT coordinator roles in POCT
- Selection of appropriate test methods
- Validation and verification protocols
- Quality control and data management
- Patient safety
- POCT training and competency

Purchase the ebook at ebooks.cap.org.



POC Competency Challenges POC14, POC15, POC16

Program Name	Program Code			Challenges per Shipment
	POC14	POC15	POC16	
Medtronic ACT/ACT Plus, i-STAT Competency	▮			5
Hemochron Jr., IL GEM PCL ACT-LR Competency		▮		5
Hemochron Jr., Signature, IL GEM PCL ACT Competency			▮	5

Program Information

- POC14 - Five abnormal 1.7-mL lyophilized whole blood specimens with five corresponding diluents and one calcium chloride diluent vial; compatible with Medtronic HemoTect ACT/ACTII/ACT Plus, Medtronic Hepcon HMS/HMS Plus, and i-STAT Celine and Kaolin ACT
- POC15 - Five abnormal 0.5-mL lyophilized whole blood/diluent ampules; compatible with IL GEM PCL Plus ACT-LR and ITC Hemochron Jr., Signature ACT-LR
- POC16 - Five abnormal 0.5-mL lyophilized whole blood/diluent ampules; compatible with IL GEM PCL Plus ACT and ITC Hemochron Jr., Signature ACT+
- Each program provides material to test up to five staff
- Shipments available upon request

6 General Chemistry and Therapeutic Drug Monitoring

When you transmit quantitative PT results directly to the CAP, less equals more.

- Spend less time manually entering PT results and more time on other priorities.
- Reduce clerical errors and make the PT process more like patient testing.
- Learn more about reporting your PT results using direct transmission at cap.org.

General Chemistry and Therapeutic Drug Monitoring

New Analyte Additions NEW

Discontinued Programs

Cardiac Markers, Troponin T (TNT5)
High-Sensitivity Cardiac Markers, Troponin T (HTNT)

General Chemistry and Therapeutic Drug Monitoring

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

General Chemistry and Therapeutic Drugs C1, C3/C3X, C4, CZ/CZX/CZ2X, Z

Analyte	Program Code					Challenges per Shipment
	C1	C3/C3X	C4	CZ/CZX/ CZ2X	Z	
Alanine aminotransferase (ALT/SGPT)	■	■		■		5
Albumin	■	■		■		5
Alkaline phosphatase	■	■		■		5
Amylase	■	■		■		5
Aspartate aminotransferase (AST/SGOT)	■	■		■		5
Bilirubin, direct	■	■	■	■		5
Bilirubin, total*	■	■	■	■		5
Calcium	■	■	■	■		5
Chloride	■	■	■	■		5
Cholesterol, total	■	■	■	■		5
Cortisol	■	■		■		5
Creatine kinase (CK)	■	■		■		5
Creatinine	■	■	■	■		5
Glucose	■	■	■	■		5
HDL cholesterol	■	■	■	■		5
Human chorionic gonadotropin (hCG), quantitative	■	■	■	■		5
Iron	■	■		■		5
Lactate dehydrogenase (LD)	■	■		■		5
LDL cholesterol, measured	■	■	■	■		5
Lipoprotein (a)	■	■		■		5
Magnesium	■	■		■		5
Pancreatic amylase	■	■		■		5
Potassium	■	■	■	■		5
Protein, total	■	■		■		5
Sodium	■	■	■	■		5
Triiodothyronine (T3), free	■	■		■		5
Triiodothyronine (T3), total	■	■		■		5
T3, uptake and related tests	■	■		■		5

Continued on the next page

*General Chemistry and Therapeutic Drugs programs do not fulfill the neonatal bilirubin proficiency testing requirements for the CAP Accreditation Programs. See programs NB, NB2, on page 67.

Program Information

- C1, C3, C4, CZ, Z - Five 5.0-mL liquid serum specimens
- C3X, CZX - Five 5.0-mL liquid serum specimens in duplicate
- CZ2X - Five 5.0-mL liquid serum specimens in triplicate
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year
- For multiple instrument reporting options, see the Quality Cross Check program, CZQ, on page 58

CE credit

General Chemistry and Therapeutic Drugs
C1, C3/C3X, C4, CZ/CZX/CZ2X, Z continued

Analyte	Program Code					Challenges per Shipment
	C1	C3/C3X	C4	CZ/CZX/ CZ2X	Z	
Thyroxine (T4), free	▮	▮		▮		5
Thyroxine (T4), total	▮	▮		▮		5
Thyroid-stimulating hormone (TSH)	▮	▮		▮		5
Triglycerides	▮	▮	▮	▮		5
Urea nitrogen (BUN)	▮	▮	▮	▮		5
Uric acid	▮	▮	▮	▮		5
Acid phosphatase		▮		▮		5
Ammonia		▮		▮		5
Apolipoprotein A1		▮		▮		5
Apolipoprotein B		▮		▮		5
Calcium, ionized		▮		▮		5
Carbon dioxide (CO_2)	▮	▮	▮	▮		5
Ferritin		▮		▮		5
Gamma glutamyl transferase (GGT)	▮	▮		▮		5
Iron binding capacity, total (measured)		▮		▮		5
Iron binding capacity, unsaturated (measured)		▮		▮		5
Lactate		▮		▮		5
Lipase		▮		▮		5
Osmolality		▮		▮		5
Phosphorus (inorganic)	▮	▮		▮		5
Prealbumin		▮		▮		5
Transferrin		▮		▮		5
Lithium	▮	▮		▮	▮	5
Acetaminophen				▮	▮	5
Amikacin				▮	▮	5
Caffeine				▮	▮	5
Carbamazepine				▮	▮	5
Carbamazepine, free				▮	▮	5
Digoxin				▮	▮	5
Digoxin, free				▮	▮	5
Disopyramide				▮	▮	5

Continued on the next page

Program Information

- C1, C3, C4, CZ, Z - Five 5.0-mL liquid serum specimens
- C3X, CZX - Five 5.0-mL liquid serum specimens in duplicate
- CZ2X - Five 5.0-mL liquid serum specimens in triplicate
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year
- For multiple instrument reporting options, see the Quality Cross Check program, CZQ, on page 58

CE credit

General Chemistry and Therapeutic Drugs C1, C3/C3X, C4, CZ/CZX/CZ2X, Z continued

Analyte	Program Code					Challenges per Shipment
	C1	C3/C3X	C4	CZ/CZX/ CZ2X	Z	
Ethosuximide				▮	▮	5
Gentamicin				▮	▮	5
Lidocaine				▮	▮	5
Methotrexate				▮	▮	5
N-acetylprocainamide (NAPA)				▮	▮	5
Phenobarbital				▮	▮	5
Phenytoin				▮	▮	5
Phenytoin, free				▮	▮	5
Primidone				▮	▮	5
Procainamide				▮	▮	5
Quinidine				▮	▮	5
Salicylate				▮	▮	5
Theophylline				▮	▮	5
Tobramycin				▮	▮	5
Valproic acid				▮	▮	5
Valproic acid, free				▮	▮	5
Vancomycin				▮	▮	5

Program Information

- C1, C3, C4, CZ, Z - Five 5.0-mL liquid serum specimens
- C3X, CZX - Five 5.0-mL liquid serum specimens in duplicate
- CZ2X - Five 5.0-mL liquid serum specimens in triplicate
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year
- For multiple instrument reporting options, see the Quality Cross Check program, CZQ, below

CE credit

Quality Cross Check—Chemistry and Therapeutic Drug Monitoring CZQ

Analyte	Program Code	Challenges per Shipment
	CZQ	
See program CZ analytes on pages 56-58	▮	3

This program does not meet regulatory requirements for proficiency testing; see program CZ on pages 56-58. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 5.0-mL liquid serum specimens in duplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Harmonized Thyroid ABTH

Analyte	Program Code	Challenges per Shipment
	ABTH	
Triiodothyronine (T3), free	▮	3
Triiodothyronine (T3), total	▮	3
Thyroxine (T4), free	▮	3
Thyroxine (T4), total	▮	3
Thyroid-stimulating hormone (TSH)	▮	3

Additional Information

- Analytes will be evaluated using harmonization.
- Specimens are collected by a modified application of Clinical and Laboratory Standards Institute Guideline CLSI C37-A, *Preparation and Validation of Commutable Frozen Human Serum Pools as Secondary Reference Materials for Cholesterol Measurement Procedures; Approved Guideline.*

Program Information

- Three 1.0-mL frozen human serum specimens
- Two shipments per year

CAP/AACC Immunosuppressive Drugs CS

Analyte	Program Code	Challenges per Shipment
	CS	
Cyclosporine	▮	3
Sirolimus (rapamycin)	▮	3
Tacrolimus	▮	3

Program Information

- Three 5.0-mL whole blood specimens
- For laboratories monitoring cyclosporine, sirolimus, and tacrolimus in transplant patients
- Two shipments per year

AACC

Antifungal Drugs Monitoring AFD

Procedure	Program Code	Challenges per Shipment
	AFD	
Fluconazole	▮	3
Itraconazole	▮	3
Posaconazole	▮	3
Voriconazole	▮	3

Program Information

- Three 2.0-mL serum specimens
- For laboratories performing quantitative analysis of anti-fungal agents
- Two shipments per year

Everolimus EV

Analyte	Program Code	Challenges per Shipment
	EV	
Everolimus	▮	3

Program Information
- Three 4.0-mL whole blood specimens
- Two shipments per year

Mycophenolic Acid MPA

Analyte	Program Code	Challenges per Shipment
	MPA	
Mycophenolic acid	▮	3

Program Information
- Three 5.0-mL lyophilized serum specimens
- Two shipments per year

Therapeutic Drug Monitoring—Extended ZE

Analyte	Program Code	Challenges per Shipment
	ZE	
Clozapine	▮	3
Gabapentin	▮	3
Lacosamide	▮	3
Lamotrigine	▮	3
Levetiracetam	▮	3
Oxcarbazepine	▮	3
Oxcarbazepine metabolite	▮	3
Pregabalin	▮	3
Rufinamide	▮	3
Teriflunomide	▮	3
Topiramate	▮	3
Zonisamide	▮	3

Program Information
- Three 5.0-mL serum specimens
- Two shipments per year

Therapeutic Drug Monitoring—Special ZT

Analyte	Program Code	Challenges per Shipment
	ZT	
Amitriptyline	▮	3
Desipramine	▮	3
Imipramine	▮	3
Nortriptyline	▮	3
Tricyclics, total (qualitative/ quantitative)	▮	3

Program Information
- Three 5.0-mL lyophilized serum specimens
- Two shipments per year

Accuracy-Based Lipids ABL

Analyte	Program Code	Challenges per Shipment
	ABL	
Apolipoprotein A1*	▮	3
Apolipoprotein B*	▮	3
Cholesterol*	▮	3
HDL cholesterol*	▮	3
Non-HDL cholesterol	▮	3
LDL cholesterol	▮	3
Lipoprotein (a)	▮	3
Triglycerides*	▮	3

*This analyte will be evaluated against the reference method.

Program Information

- Three 1.0-mL human serum specimens
- Two shipments per year

B-Type Natriuretic Peptides BNP, BNP5

Analyte	Challenges per Shipment	
	Program Code	
	BNP	BNP5
BNP	2	5
NT-proBNP	2	5

Additional Information

- The College of American Pathologists Accreditation Program requires all accredited laboratories performing non-waived testing for BNP and NT-proBNP to complete 15 PT challenges per year.
- For i-STAT®, use Plasma Cardiac Markers programs PCARM or PCARMX.
- For second instrument reporting options, see the Quality Cross Check program, BNPQ, below.

Program Information

- BNP - Two 1.0-mL liquid plasma specimens
- Conventional and International System of Units (SI) reporting offered; two shipments per year
- BNP5 - Five 1.0-mL liquid plasma specimens
- Conventional and International System of Units (SI) reporting offered; three shipments per year

Quality Cross Check—B-Type Natriuretic Peptides BNPQ

Analyte	Program Code	Challenges per Shipment
	BNPQ	
BNP	▮	3
NT-proBNP	▮	3

This program does not meet regulatory requirements for proficiency testing; see program BNP or BNP5, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 1.5-mL liquid specimens
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Cardiac Markers CRT, CRTI, HCRT, HCRTI

Analyte	Program Code				Challenges per Shipment
	CRT	CRTI	HCRT	HCRTI	
CK-MB, immunochemical	▮	▮	▮	▮	5
CK isoenzymes (CK-BB, **CK-MB**, CK-MM), electrophoretic		▮		▮	5
LD1, LD2, LD3, LD4, LD5, electrophoretic		▮		▮	5
LD1/LD2 ratio calculation and interpretation		▮		▮	5
Myoglobin	▮	▮	▮	▮	2
Troponin I	▮	▮			5
Troponin T	▮	▮			5
High-sensitivity troponin I			▮	▮	5
High-sensitivity troponin T			▮	▮	5

Program Information

- CRT - Five 2.0-mL liquid serum specimens
- CRTI - Ten 2.0-mL liquid serum specimens
- HCRT - Five 2.0-mL liquid serum specimens
- HCRTI - Ten 2.0-mL liquid serum specimens
- Three shipments per year

Quality Cross Check—Cardiac Markers CRTQ

Analyte	Program Code	Challenges per Shipment
	CRTQ	
CK-MB, immunochemical	▮	3
Myoglobin	▮	3
Troponin I	▮	3

This program does not meet regulatory requirements for proficiency testing; see program CRT on page 62. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 2.0-mL liquid serum specimens
- Report up to three instruments
- Two shipments per year

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Up to 70% of laboratory errors occur prior to sample analysis and testing. Ensure everyone on your team is equipped to procure a quality blood specimen with this modern update to the classic reference guide.

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- Special considerations for the difficult venipuncture
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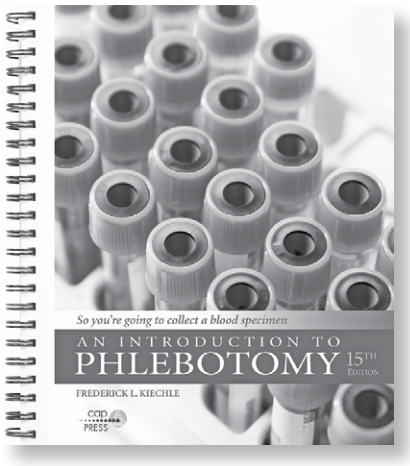

Item number: PUB225
Spiral bound; 84 pages;
30+ images and tables; 2017

Troponin Turnaround Times QT15

Patients presenting to the emergency department (ED) with chest pain must be evaluated quickly. Rapid serum troponin measurement is an important part of ED practice that can provide decisive information for patient management. Reducing delays in troponin testing has been reported to result in shorter length of stay in the ED and more rapid initiation of anti-ischemic treatment. EDs and chest pain centers should, therefore, have effective procedures for ensuring optimal turnaround time (TAT) for troponin testing and a process for ongoing monitoring to ensure that performance meets expectations.

QT15 has multiple time intervals to help pinpoint process time challenges. Laboratories may use this monitor to help meet CAP Laboratory Accreditation Program Checklist statement GEN.20316 QM Indicators of Quality. The American College of Cardiology and the American Heart Association recommend troponin as the preferred diagnostic biomarker in their Acute Coronary Syndromes guideline.

Objectives

This study will assist participating laboratories to determine and monitor:

- The median TATs for processes from order time through result availability, with up to five time intervals within the total testing process
- The percent compliance for troponin results with their institution's established deadline

Data Collection

Six days per month, collect data from nine patients presenting to the ED with chest pain and tested for troponin level. Data includes time of troponin test order, specimen collection, laboratory receipt, and result availability. Participants are not required to provide data from each TAT component. Participants will select TAT metrics that they wish to monitor, with the option to monitor all metrics.

Participants will also complete a questionnaire about clinical and laboratory practices related to troponin testing.

Performance Indicators

Median TATs for the following time intervals:

- Test order to specimen collection
- Specimen collection to laboratory receipt
- Laboratory receipt to result availability
- Specimen collection to result availability
- Test order to result availability

Compliance (%) with insitutional threshold for the following time intervals:

- Specimen collection to result availability
- Test order to result availability

Look for your input forms approximately two weeks prior to the quarter.

Hemoglobin A_{1c} GH2, GH5

Analyte	Challenges per Shipment	
	Program Code	
	GH2	GH5
Hemoglobin A_{1c}	3	5

Additional Information

- These programs will be evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method.
- The CAP's Accreditation Programs require all accredited laboratories performing non-waived testing for Hemoglobin A_{1c} to complete 15 PT challenges per year.
- For multiple instrument reporting options, see the Quality Cross Check program, GHQ, below.
- These programs have limited stability. Laboratories outside the US or Canada should consider purchase of GH5I, which has longer stability.

Program Information

- GH2 - Three 0.8-mL liquid human whole blood specimens; two shipments per year
- GH5 - Five 0.8-mL liquid human whole blood specimens; three shipments per year

Quality Cross Check—Hemoglobin A_{1c} GHQ

Analyte	Program Code	Challenges per Shipment
	GHQ	
Hemoglobin A_{1c}	▮	3

This program does not meet regulatory requirements for proficiency testing; see program GH5, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 0.8-mL previously frozen liquid specimens in triplicate
- Report up to three instruments
- Two shipments per year

Hemoglobin A_{1c} GH5I

Analyte	Program Code	Challenges per Shipment
	GH5I	
Hemoglobin A_{1c}	▮	5

Additional Information

- This program meets the proficiency testing requirements for the CAP's Accreditation Programs.
- This program will not be evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method. See program GH5 to be evaluated against the NGSP reference method.

Program Information

- Five 0.5-mL lyophilized specimens with a 3.0-mL dropper-tipped vial of diluent
- Designed for international laboratories that have experienced significant shipping and receiving issues and require longer specimen stability
- Three shipments per year

Glycated Serum Albumin GSA

Analyte	Program Code	Challenges per Shipment
	GSA	
Glycated serum albumin	▮	3

Program Information
- Three 1.0-mL liquid serum specimens
- Two shipments per year

High-Sensitivity C-Reactive Protein HSCRP

Analyte	Program Code	Challenges per Shipment
	HSCRP	
High-sensitivity C-reactive protein	▮	3

Program Information
- Three 0.5-mL liquid serum specimens
- Two shipments per year

Homocysteine HMS

Analyte	Program Code	Challenges per Shipment
	HMS	
Homocysteine	▮	3

Program Information
- Three 1.0-mL serum specimens
- Two shipments per year

Ketones KET

Analyte	Program Code	Challenges per Shipment
	KET	
Beta-hydroxybutyrate	▮	2
Total ketones	▮	2

Program Information
- Two 2.0-mL serum specimens
- For semi-quantitative methods using the nitroprusside reaction for total ketones testing
- Two shipments per year

Chemistry—Limited, Waived LCW

Analyte	Program Code	Challenges per Shipment
	LCW	
Cholesterol	▮	3
Glucose	▮	3
HDL cholesterol	▮	3
LDL cholesterol	▮	3
Triglycerides	▮	3

Program Information
- Three 3.0-mL liquid serum specimens
- For use with waived methods such as the Cholestech LDX® and Roche Accu-Chek® Instant Plus
- The glucose specimens are not appropriate for use on other whole blood glucose meters
- Two shipments per year

Neonatal Bilirubin NB, NB2

Analyte	Challenges per Shipment	
	Program Code	
	NB	NB2
Bilirubin, direct	2	2
Bilirubin, total	5	2

One human-based serum specimen will offer the value assigned using the reference method procedure (*Clin Chem.* 1985;31:1779-1789).

Program Information

- NB - Five 1.0-mL human serum specimens; three shipments per year
- NB2 - Two 1.0-mL human serum specimens; must order in conjunction with a five-challenge total bilirubin proficiency testing program to meet regulatory requirements; two shipments per year
- Conventional and International System of Units (SI) reporting offered

Plasma Cardiac Markers PCARM, PCARMX

Analyte	Program Code		Challenges per Shipment
	PCARM	PCARMX	
BNP	▮	▮	5
CK-MB	▮	▮	5
D-dimer	▮	▮	2
Myoglobin	▮	▮	2
NT-proBNP	▮	▮	5
Troponin I	▮	▮	5

The CAP's Accreditation Programs require all accredited laboratories performing non-waived testing for BNP and Troponin I to complete 15 PT challenges per year.

Program Information

- PCARM - Five 1.5-mL liquid EDTA plasma specimens for point-of-care instruments such as Quidel Triage, Pathfast, and i-STAT
- PCARMX - All PCARM specimens in duplicate
- Three shipments per year

Plasma Cardiac Markers International PCARI

Analyte	Program Code	Challenges per Shipment
	PCARI	
Troponin I	▮	5

The CAP's Accreditation Programs require all accredited laboratories performing non-waived testing for Troponin I to complete 15 PT challenges per year.

Program Information

- Five 0.29-mL liquid plasma specimens for use with Quidel Triage Cardio2, Cardio3, and Troponin I
- Three shipments per year

Whole Blood Chemistry Compatibility Matrix

Whole Blood Analyzer/Method	Analyte	Compatible Survey Programs	Page
Hemocue®	Glucose	HCC	68
Roche Reflotron®	Cholesterol	C1, C4	56-58
	Glucose		56-58
Cholestech LDX®	Total cholesterol	LCW	66
	HDL cholesterol		66
	Triglycerides		66
	Glucose		66
Whole blood cholesterol meters	Cholesterol	C1, C4, LCW	56-58, 66
Whole blood glucose meters	Glucose	HCC2, WBGQ	68 69
Nova StatSensor®/ StatSensor Xpress™	Creatinine	WBCR	69

Waived Combination HCC, HCC2

Analyte	Program Code		Challenges per Shipment
	HCC	HCC2	
Hematocrit		▮	2
Hemoglobin	▮	▮	2
Urinalysis/urine hCG		▮	2
Whole blood glucose	▮	▮	2 (HCC)/3 (HCC2)

Program Information

- HCC - Two 2.5-mL whole blood specimens; two shipments per year
- Conventional and International System of Units (SI) reporting offered
- HCC2 - Total of four shipments per year

  Hematocrit, hemoglobin, and urinalysis/urine hCG testing - Two 3.0-mL whole blood specimens and two 10.0-mL urine specimens; two shipments per year: A and C

  Whole blood glucose testing - Three 2.0-mL whole blood specimens; two shipments per year: B and D
- To verify instrument compatibility, refer to the instrument matrix on this page

Whole Blood Creatinine WBCR

Analyte	Program Code	Challenges per Shipment
	WBCR	
Creatinine	▮	5

Program Information

- Five 4.0-mL whole blood specimens
- For use with the Nova StatSensor/StatSensor Xpress
- Three shipments per year

Quality Cross Check—Whole Blood Glucose WBGQ

Analyte	Program Code	Challenges per Shipment
	WBGQ	
Glucose	▮	3

Program Information

- Three 2.0-mL whole blood specimens
- Report up to 30 instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

The CAP Accreditation Program requires all accredited laboratories performing waived whole blood glucose testing using glucose meters to perform alternative performance assessment. This program can be used to meet alternative performance assessment requirements.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Chemistry/TDM, Validated Material

Validated Material	Program Code	Corresponding Survey	Pages
Chemistry/TDM	CZVM	CZ	56-58

Program Information

- Five 5.0-mL liquid serum specimens

Urine Chemistry

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Urine Chemistry—General U

Analyte	Program Code	Challenges per Shipment
	U	
Amylase	▮	3
Calcium	▮	3
Chloride	▮	3
Creatinine	▮	3
Glucose	▮	3
Magnesium	▮	3
Nitrogen, total	▮	3
Osmolality	▮	3
Phosphorus	▮	3
Potassium	▮	3
Protein, total	▮	3
Sodium	▮	3
Urea nitrogen	▮	3
Uric acid	▮	3
Urine albumin, quantitative	▮	3
Urine albumin:creatinine ratio	▮	3

Program Information

- Six 15.0-mL urine specimens
- One mailing per year will include an additional educational specimen for uric acid testing for a total of seven challenges per year
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Accuracy-Based Urine ABU

Analyte	Program Code	Challenges per Shipment
	ABU	
Calcium	▮	3
Creatinine	▮	3
Protein, total	▮	3
Urine albumin, quantitative	▮	3
Urine albumin: creatinine ratio	▮	3

Program Information

- Three 5.0-mL human urine specimens
- Two shipments per year

Additional Information

- Target values for albumin are obtained by LC-MS/MS after trypsin digestion, performed by the Renal Testing Laboratory, Mayo Clinic, Rochester, MN, using calibration materials prepared from human serum albumin (>99% pure).
- Other analytes will be compared by peer group for harmonization purposes.

Kidney Stone Risk Assessment KSA

Analyte	Program Code	Challenges per Shipment
	KSA	
Citrate	▮	3
Cystine	▮	3
Oxalate	▮	3

Program Information
- Three 13.5-mL liquid urine specimens
- Two shipments per year

Urine Chemistry—Special N, NX

Analyte	Program Code	Challenges per Shipment
	N, NX	
3-methoxytyramines	▮	3
5-hydroxyindoleacetic acid	▮	3
17-hydroxycorticosteroids	▮	3
17-ketosteroids	▮	3
Aldosterone	▮	3
Coproporphyrins	▮	3
Cortisol, urinary free	▮	3
Dopamine	▮	3
Epinephrine	▮	3
Homovanillic acid	▮	3
Metanephrine	▮	3
Norepinephrine	▮	3
Normetanephrine	▮	3
Uroporphyrin	▮	3
Vanillylmandelic acid	▮	3

Program Information
- N - Six 10.0-mL lyophilized urine specimens and three 10.0-mL liquid urine specimens
- NX - All lyophilized program N specimens in duplicate and three 10.0-mL liquid urine specimens
- Two shipments per year

Myoglobin, Urine MYG

Analyte	Program Code	Challenges per Shipment
	MYG	
Myoglobin, urine, qualitative and quantitative	▮	2

Program Information
- Two 1.0-mL urine specimens
- Two shipments per year

Porphobilinogen, Urine UPBG		
Analyte	**Program Code**	**Challenges per Shipment**
	UPBG	
Porphobilinogen	▮	3

Program Information
- Three 5.0-mL urine specimens
- For use with qualitative and quantitative methods
- Two shipments per year

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Urine Chemistry—General, Validated Material

Validated Material	Program Code	Corresponding Survey	Page
Urine Chemistry	UVM	U	70

Program Information
- Six 15.0-mL urine specimens
- One mailing per year will include an additional specimen for uric acid testing

Urinalysis Benchtop Reference Guide (UABRG)

- Thirty-four different cell identifications, including common and rare cells
- Detailed descriptions for each cell morphology
- Eight tabbed sections for easy reference
- A durable and water-resistant format to withstand years of benchtop use—5” x 6½”

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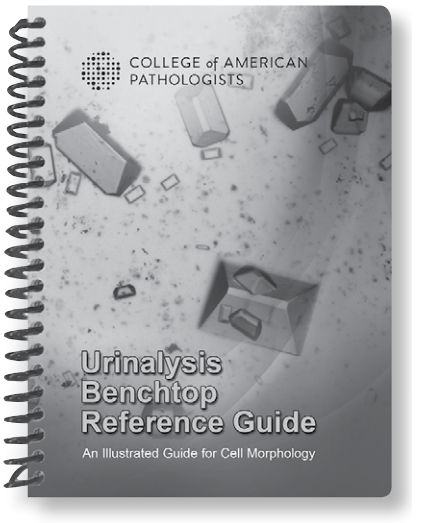


Item number: UABRG
Spiral bound; 38 pages; 34 images; 2014

Special Chemistry

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

1,5-Anhydroglucitol AG

Analyte	Program Code	Challenges per Shipment
	AG	
1,5-anhydroglucitol	▮	3

Program Information
- Three 1.0-mL liquid serum specimens
- Two shipments per year

Aldolase ADL

Analyte	Program Code	Challenges per Shipment
	ADL	
Aldolase	▮	2

Program Information
- Two 3.0-mL liquid serum specimens
- Two shipments per year

Angiotensin Converting Enzyme ACE

Analyte	Program Code	Challenges per Shipment
	ACE	
Angiotensin converting enzyme, quantitative	▮	2

Program Information
- Two 2.0-mL lyophilized serum specimens
- Two shipments per year

Body Fluid Chemistry FLD

Analyte	Program Code	Challenges per Shipment
	FLD	
Albumin	▮	3
Amylase	▮	3
CA19-9	▮	1
CEA	▮	1
Cholesterol	▮	3
Creatinine	▮	3
Glucose	▮	3
Lactate	▮	3
Lactate dehydrogenase (LD)	▮	3
pH	▮	3
Protein, total	▮	3
Triglycerides	▮	3
Urea nitrogen	▮	1

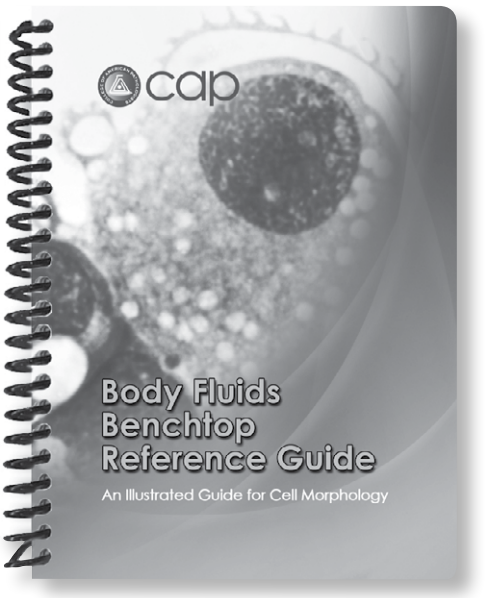
For multiple instrument reporting options, see the Quality Cross Check program, FLDQ, on page 75.

Program Information

- Three 3.0-mL simulated liquid body fluid specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Body Fluids Benchtop Reference Guide (BFBRG)

- Thirty-six color images, including common and rare cells, crystals, and other cell inclusions
- Detailed descriptions of each cell including facts, cell morphology, and inclusions
- Nine tabbed sections for easy reference
  - Erythroid Series
  - Lymphoid Series
  - Myeloid Series
  - Mononuclear Phagocytic Series
  - Lining Cells
  - Miscellaneous Cells
  - Crystals
  - Microorganisms
  - Miscellaneous Findings
- A durable and water-resistant format to withstand years of benchtop use—5” x 6½”



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Quality Cross Check—Body Fluid Chemistry FLDQ

Analyte	Program Code	Challenges per Shipment
	FLDQ	
Albumin	▮	3
Amylase	▮	3
CA19-9	▮	1
Carcinoembryonic antigen (CEA)	▮	1
Cholesterol	▮	3
Creatinine	▮	3
Glucose	▮	3
Lactate	▮	3
Lactate dehydrogenase (LD)	▮	3
pH	▮	3
Protein, total	▮	3
Triglycerides	▮	3
Urea nitrogen	▮	1

This program does not meet regulatory requirements for proficiency testing; see program FLD on page 74. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 3.0-mL simulated liquid body fluid specimens in duplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Body Fluid Chemistry 2 FLD2

Analyte	Program Code	Challenges per Shipment
	FLD2	
Alkaline phosphatase	▮	3
Bilirubin	▮	3
Calcium	▮	3
Chloride	▮	3
Lipase	▮	3
Potassium	▮	3
Sodium	▮	3
Uric acid	▮	3

Program Information

- Three 3.0-mL liquid body fluid specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Cadmium CD

Analyte	Program Code	Challenges per Shipment
	CD	
Beta-2-microglobulin, urine	▮	3
Cadmium, urine	▮	3
Cadmium, whole blood	▮	3
Creatinine, urine	▮	3

This program meets the Occupational Safety and Health Administration (OSHA) guidelines for proficiency testing (OSHA standard-29 CFR 1910.1027AppF).

Program Information

- Three 6.0-mL whole blood specimens and three 12.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- Six shipments per year

CE credit

Cerebrospinal Fluid Chemistry and Oligoclonal Bands M, OLI

Analyte	Program Code		Challenges per Shipment
	M	OLI	
Albumin, quantitative	▮	▮	3
Electrophoresis (albumin and gamma globulin)	▮	▮	3
Glucose	▮	▮	3
IgG, quantitative	▮	▮	3
Lactate	▮	▮	3
Lactate dehydrogenase (LD)	▮	▮	3
Protein, total	▮	▮	3
Oligoclonal bands		▮	3

Program Information

- M - Three 5.0-mL simulated liquid spinal fluid specimens
- OLI - Three 5.0-mL simulated liquid spinal fluid specimens and three 1.0-mL paired serum specimens; one online educational pattern interpretation challenge and three educational activities to calculate CSF IgG index and synthesis rate each mailing
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Cystatin C CYS

Analyte	Program Code	Challenges per Shipment
	CYS	
Cystatin C	▮	2

Program Information

- Two 1.0-mL liquid serum specimens
- Two shipments per year

Fecal Calprotectin FCAL

Analyte	Program Code	Challenges per Shipment
	FCAL	
Fecal calprotectin	▮	3

Program Information
- Three 1.0-g simulated fecal specimens
- Two shipments per year

Fecal Fat FCFS

Analyte	Program Code	Challenges per Shipment
	FCFS	
Fecal fat, qualitative	▮	2

Program Information
- Two 10.0-g simulated fecal fat specimens
- For microscopic detection of neutral fats (triglycerides) and/or split fats (total free fatty acids)
- Two shipments per year

Fructosamine FT

Analyte	Program Code	Challenges per Shipment
	FT	
Fructosamine	▮	2

Program Information
- Two 1.0-mL liquid serum specimens
- Two shipments per year

Glucose-6-Phosphate Dehydrogenase G6PDS

Analyte	Program Code	Challenges per Shipment
	G6PDS	
G6PD, qualitative and quantitative	▮	2

Program Information
- Two 0.5-mL lyophilized hemolysate specimens
- Two shipments per year

Lipoprotein-Associated Phospholipase A_2 PLA

Analyte	Program Code	Challenges per Shipment
	PLA	
Lipoprotein-associated phospholipase (Lp-PLA_2) activity	▮	2

Program Information
- Two 1.0-mL liquid specimens
- Two shipments per year

Lipoprotein and Protein Electrophoresis LPE, SPE, UBJP

Analyte	Program Code			Challenges per Shipment
	LPE	SPE	UBJP	
Lipoprotein electrophoresis	▮			2
IgA, quantitation		▮		2
IgG, quantitation		▮		2
IgM, quantitation		▮		2
M-component (Paraprotein) identification		▮		2
Protein, total		▮		2
Protein electrophoresis		▮		2
Protein electrophoresis pattern interpretation		▮		2
Urine Bence Jones protein			▮	2

Program Information

- LPE - Two 1.0-mL liquid serum specimens
- SPE - Two 1.0-mL lyophilized serum specimens; two online educational protein electrophoresis challenges per year
- UBJP - Two 10.0-mL urine specimens
- Two shipments per year

CE credit

Lamellar Body Count LBC

Procedure	Program Code	Challenges per Shipment
	LBC	
Lamellar body count	▮	3

Program Information

- Three 2.0-mL simulated amniotic fluid specimens
- For use with LBC methods performed on all hematology analyzers
- Two shipments per year

Plasma Hemoglobin PHG

Analyte	Program Code	Challenges per Shipment
	PHG	
Plasma hemoglobin	▮	2

Program Information

- Two 2.0-mL liquid specimens
- Two shipments per year

Procalcitonin PCT

Analyte	Program Code	Challenges per Shipment
	PCT	
Procalcitonin	▮	3

Program Information
- Three 1.0-mL lyophilized serum specimens
- Two shipments per year

Pseudocholinesterase C7

Analyte	Program Code	Challenges per Shipment
	C7	
Pseudocholinesterase	▮	1

Program Information
- One 2.0-mL lyophilized serum specimen
- Three shipments per year

CE credit

Salivary Cortisol SALC

Analyte	Program Code	Challenges per Shipment
	SALC	
Salivary cortisol	▮	3

Program Information
- Three 2.0-mL synthetic oral fluid specimens
- Two shipments per year

Accuracy-Based Testosterone, Estradiol ABS

Analyte	Program Code	Challenges per Shipment
	ABS	
Albumin	▮	3
Cortisol	▮	3
Estradiol	▮	3
Follicle-stimulating hormone (FSH)	▮	3
Luteinizing hormone (LH)	▮	3
Prostate-specific antigen (PSA), total NEW	▮	3
Sex hormone-binding globulin (SHBG)	▮	3
Testosterone	▮	3
Thyroid-stimulating hormone (TSH)	▮	3

The Centers for Disease Control and Prevention (CDC) will set target values for testosterone and estradiol using the established reference methods.

Program Information
- Three 1.0-mL human serum specimens
- Two shipments per year

Total Bile Acids TBLA

Analyte	Program Code	Challenges per Shipment
	TBLA	
Total bile acids	▮	3

Program Information

- Three 5.0-mL liquid serum specimens
- Two shipments per year

Trace Metals R

Analyte	Program Code	Challenges per Shipment
	R	
Aluminum	▮	3
Chromium	▮	3
Copper	▮	3
Manganese	▮	3
Selenium	▮	3
Zinc	▮	3

Program Information

- Three 6.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Trace Metals, Urine TMU

Analyte	Program Code	Challenges per Shipment
	TMU	
Aluminum	▮	2
Arsenic	▮	2
Chromium	▮	2
Cobalt	▮	2
Copper	▮	2
Lead	▮	2
Manganese	▮	2
Mercury	▮	2
Selenium	▮	2
Thallium	▮	2
Zinc	▮	2

Program Information

- Two 25.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- For laboratories that monitor trace metals at normal and toxic levels
- Two shipments per year

Trace Metals, Whole Blood TMWB

Analyte	Program Code	Challenges per Shipment
	TMWB	
Aluminum	▮	3
Arsenic, total	▮	3
Chromium	▮	3
Cobalt	▮	3
Copper	▮	3
Manganese	▮	3
Mercury	▮	3
Selenium	▮	3
Thallium	▮	3
Zinc	▮	3

Program Information

- Three 6.0-mL whole blood specimens
- Conventional and International System of Units (SI) reporting offered
- For laboratories that monitor trace metals at normal and toxic levels
- Two shipments per year

CE credit

Sweat Analysis Series SW1, SW2, SW4

Analyte	Program Code	Challenges per Shipment
	SW1, SW2, SW4	
Chloride	▮	3
Conductivity	▮	3

For method compatibility, see chart below.

Program Information

- SW1, SW2, SW4 - Three 5.0-mL simulated liquid human sweat specimens
- Two shipments per year

Sweat Analysis Series Compatibility Matrix

Method/Procedure	Program Code			Materials Included
	SW1	SW2	SW4	
Orion direct electrode	▮			Precut 2-cm diameter Whatman filter papers
Wescor Macroduct™ and Nanoduct® Systems		▮		22-gauge blunt-tipped needles
All other methodologies			▮	No additional materials provided

Viscosity V

Analyte	Program Code	Challenges per Shipment
	V	
Viscosity	▮	2

Program Information
- Two 10.0-mL serum specimens
- Two shipments per year

Soluble Transferrin Receptor STFR

Analyte	Program Code	Challenges per Shipment
	STFR	
Soluble transferrin receptor (sTfR)	▮	3

Program Information
- Three 2.5-mL liquid human serum specimens
- Two shipments per year

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Cerebrospinal Fluid, Validated Material

Validated Material	Program Code	Corresponding Survey	Page
Cerebrospinal Fluid	MVM	M	76

Program Information
- Three 5.0-mL simulated liquid spinal fluid specimens

The CAP is your trusted calibration verification and linearity partner, offering a comprehensive menu of programs for diagnostic confidence.

- **Expedited results**—View your linearity evaluation for most CVL programs within two business days of data submission.
- **Customized report package**—Let our team of biostatisticians perform the statistical analysis of your results so you do not have to.
- **Objective Assessment**—Maximize confidence in instrument calibration by using peer group data for a view beyond your laboratory.

See the Instrumentation Verification Tools section of this catalog to determine programs that best fit your laboratory's CVL needs.

7 Endocrinology

Gain more value from your accreditation program.

CAP accreditation is more than "something to check off your list." It is an opportunity to help keep your laboratory operating at peak performance.

- The CAP offers educational material and support, including highly-trained medical technologists who are available to answer questions.
- The peer inspection model helps participants develop meaningful connections, learn from each other, and share best practices.

New Analyte Additions NEW

Endocrinology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Ligand—General K, KK

Analyte	Program Code	Challenges per Shipment
	K, KK	
Alpha-fetoprotein (AFP)	▮	5
Carcinoembryonic antigen (CEA)	▮	5
Cortisol	▮	5
Ferritin	▮	5
Folate, serum	▮	5
Human chorionic gonadotropin (hCG), quantitative	▮	5
Immunoglobulin E (IgE)	▮	5
Prostate-specific antigen (PSA), total	▮	5
p2PSA	▮	5
Prostate-specific antigen, complexed (cPSA)	▮	5
Prostate-specific antigen (PSA), free	▮	5
Prostatic acid phosphatase (PAP)	▮	5
Triiodothyronine (T3), free	▮	5
Triiodothyronine (T3), total	▮	5
T3 uptake and related tests	▮	5
Thyroxine (T4), free	▮	5
Thyroxine (T4), total	▮	5
Thyroid-stimulating hormone (TSH)	▮	5
Vitamin B_{12}	▮	5

Program Information

- K - Five 5.0-mL liquid serum specimens
- KK - Five 5.0-mL liquid serum specimens in duplicate
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

MMA and Active B_{12} MMA

Analyte/Procedure	Program Code	Challenges per Shipment
	MMA	
Active vitamin B_{12}	▮	3
Methylmalonic acid	▮	3

Program Information

- Three 1.0-mL lyophilized serum specimens
- Two shipments per year

B-Type Natriuretic Peptides BNP, BNP5

Analyte	Challenges per Shipment	
	Program Code	
	BNP	BNP5
BNP	2	5
NT-proBNP	2	5

Additional Information

- The College of American Pathologists Accreditation Program requires all accredited laboratories performing non-waived testing for BNP and NT-proBNP to complete 15 PT challenges per year.
- For i-STAT®, use Plasma Cardiac Markers programs PCARM or PCARMX.
- For second instrument reporting options, see the Quality Cross Check program, BNPQ, below.

Program Information

- BNP - Two 1.0-mL liquid plasma specimens
- Conventional and International System of Units (SI) reporting offered; two shipments per year
- BNP5 - Five 1.0-mL liquid plasma specimens
- Conventional and International System of Units (SI) reporting offered; three shipments per year

Quality Cross Check—B-Type Natriuretic Peptides BNPQ

Analyte	Program Code	Challenges per Shipment
	BNPQ	
BNP	▮	3
NT-proBNP	▮	3

This program does not meet regulatory requirements for proficiency testing; see program BNP or BNP5, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 1.5-mL liquid specimens
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Sex Hormones Y, YY, DY

Analyte	Program Code		Challenges per Shipment
	Y, YY	DY	
11-deoxycortisol	▮		3
17-hydroxyprogesterone	▮		3
Androstenedione	▮		3
DHEA sulfate	▮		3
Estradiol	▮		3
Estriol, unconjugated (uE3)	▮		3
Follicle-stimulating hormone (FSH)	▮		3
Growth hormone (GH)	▮		3
IGF-1 (somatomedin C)	▮		3
Luteinizing hormone (LH)	▮		3
Progesterone	▮		3
Prolactin	▮		3
Testosterone	▮		3
Testosterone, bioavailable (measured)		▮	3
Testosterone, free (measured)		▮	3
Sex hormone-binding globulin (SHBG)		▮	3

Program Information

- Y - Three 5.0-mL liquid serum specimens in duplicate
- YY - Three 5.0-mL liquid serum specimens in triplicate
- DY - Must order in conjunction with program Y or YY
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Antimüllerian Hormone AMH

Analyte	Program Code	Challenges per Shipment
	AMH	
Antimüllerian hormone	▮	3

Program Information

- Three 1.0-mL lyophilized serum specimens
- Two shipments per year

25-OH Vitamin D, Total VITD

Analyte	Program Code	Challenges per Shipment
	VITD	
25-OH vitamin D, total	▮	3

Program Information

- Three 1.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Bone and Growth BGS

Analyte	Program Code	Challenges per Shipment
	BGS	
IGF-1 (somatomedin C)	▮	3
Osteocalcin	▮	3

Program Information

- Three 1.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Accuracy-Based Vitamin D ABVD

Analyte	Program Code	Challenges per Shipment
	ABVD	
25-OH vitamin D (D2 and D3)	▮	3
Calcium	▮	3

Additional Information

- The Centers for Disease Control and Prevention (CDC) will establish reference targets using isotope-dilution LC-MS/MS method.
- Specimens are collected by a modified application of Clinical and Laboratory Standards Institute Guideline CLSI C37-A, *Preparation and Validation of Commutable Frozen Human Serum Pools as Secondary Reference Materials for Cholesterol Measurement Procedures; Approved Guideline.*

Program Information

- Three 1.0-mL liquid human serum specimens
- Serum is from multi-donor endogenous pools
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Bone and Mineral Metabolism, Urine BU

Analyte	Program Code	Challenges per Shipment
	BU	
C-telopeptide (CTx)	▮	2
Creatinine	▮	2
Deoxypyridinoline (DPD)	▮	2
N-telopeptide (NTx)	▮	2

Program Information

- Two 2.0-mL lyophilized human urine specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Bone Markers and Vitamins
BMV1, BMV2, BMV3, BMV4, BMV5, BMV6

Analyte	Program Code						Challenges per Shipment
	BMV1	BMV2	BMV3	BMV4	BMV5	BMV6	
1,25 dihydroxy vitamin D	▮						3
Bone-specific alkaline phosphatase		▮					3
Vitamin A			▮				3
Vitamin E, total NEW				▮			3
C-telopeptide					▮		3
N-telopeptide						▮	3

Program Information

- BMV1-BMV4 - Three 5.0-mL liquid serum specimens for each program
- BMV5, BMV6 - Three 1.0-mL liquid serum specimens for each program
- Two shipments per year

Insulin, Gastrin, C-Peptide, and PTH ING

Analyte	Program Code	Challenges per Shipment
	ING	
C-peptide	▮	3
Gastrin	▮	3
Insulin	▮	3
Parathyroid hormone (PTH)	▮	3

Program Information

- Three 5.0-mL lyophilized serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Accuracy-Based Glucose, Insulin, and C-Peptide ABGIC

Analyte	Program Code	Challenges per Shipment
	ABGIC	
C-peptide	▮	3
Glucose	▮	3
Insulin	▮	3

Program Information

- Three 1.0-mL serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Additional Information

- Target values are based upon the isotope-dilution gas chromatography-mass spectrometry reference measurement procedure for glucose performed by the CDC Reference Laboratory, Division of Laboratory Sciences, Centers for Disease Control and Prevention (Atlanta, GA).
- Target values for C-peptide are established by isotope-dilution mass spectrometry, performed at the University of Missouri, Diabetes Diagnostic Laboratory.

Quality Cross Check—Parathyroid Hormone PTHQ

Analyte	Program Code	Challenges per Shipment
	PTHQ	
Parathyroid hormone (PTH)	▮	3

This program does not meet regulatory requirements for proficiency testing; see program ING on page 88. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 5.0-mL lyophilized serum specimens in duplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Second Trimester Maternal Screening FP, FPX

Analyte	Program Code	Challenges per Shipment
	FP, FPX	
Alpha-fetoprotein (AFP), amniotic fluid	▮	2
Alpha-fetoprotein (AFP), serum	▮	5
Dimeric inhibin A (DIA)	▮	5
Estriol, unconjugated (uE3)	▮	5
Human chorionic gonadotropin (hCG), quantitative	▮	5

The CAP designed these programs for laboratories using AFP and hCG for prenatal screening purposes only. For all other applications, see program K or KK on page 84.

Program Information

- FP - Five 1.0-mL serum specimens; two 1.0-mL simulated amniotic fluid specimens
- FPX - All program FP serum specimens in duplicate; two 1.0-mL simulated amniotic fluid specimens
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

First Trimester Maternal Screening FP1T, FP1B

Analyte	Program Code		Challenges per Shipment
	FP1T	FP1B	
Total hCG	▮		5
Free beta hCG		▮	5
PAPP-A	▮	▮	5

The CAP designed these programs for laboratories using hCG for prenatal screening purposes only. For all other applications, see program K or KK on page 84.

Program Information

- FP1T, FP1B - Five 1.0-mL serum specimens
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

Noninvasive Prenatal Testing NIPT

Analyte	Program Code	Challenges per Shipment
	NIPT	
Cell-free DNA screening for fetal aneuploidy	▮	3

Noninvasive prenatal testing is an exercise and is not considered proficiency testing. This exercise may be used to meet the requirements for alternative assessment.

Program Information
- Three liquid specimens
- Two shipments per year

Erythropoietin EPO

Analyte	Program Code	Challenges per Shipment
	EPO	
Erythropoietin	▮	2

Program Information
- Two 1.5-mL serum specimens
- Two shipments per year

CE credit

Fetal Fibronectin FF

Analyte	Program Code	Challenges per Shipment
	FF	
Fetal fibronectin	▮	2

Program Information
- Two 1.2-mL liquid specimens
- Two shipments per year

Red Blood Cell Folate FOL

Analyte	Program Code	Challenges per Shipment
	FOL	
RBC folate	▮	2

Program Information
- Two 2.0-mL lyophilized whole blood specimens
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

Renin and Aldosterone RAP

Analyte	Program Code	Challenges per Shipment
	RAP	
Aldosterone	▮	3
Renin	▮	3

Program Information

- Three 2.0-mL lyophilized plasma specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Tumor Markers TM, TMX

Analyte	Program Code	Challenges per Shipment
	TM, TMX	
Adrenocorticotropic hormone (ACTH)	▮	3
Beta-2 microglobulin	▮	3
CA 15-3	▮	3
CA 19-9	▮	3
CA 27.29	▮	3
CA 72-4	▮	3
CA 125	▮	3
Calcitonin	▮	3
Thyroglobulin	▮	3

Program Information

- TM - Three 2.0-mL liquid serum specimens
- TMX - All program TM specimens in duplicate
- Two shipments per year

Human Epididymis Protein 4 HUEP

Analyte	Program Code	Challenges per Shipment
	HUEP	
Human epididymis protein 4	▮	3

Program Information

- Three 1.0-mL lyophilized serum specimens
- Two shipments per year

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Endocrinology, Validated Materials

Validated Material	Program Code	Corresponding Survey	Page
Ligand—General	KVM	K	84
Sex Hormones	YVM	Y	86

Program Information

- KVM - Five 5.0-mL liquid serum specimens; three shipments per year
- YVM - Three 5.0-mL liquid serum specimens in duplicate; two shipments per year

8 Blood Gas, Critical Care, and Oximetry

Our programs closely mimic patient testing to ensure accuracy.

- Test specimen levels that reflect clinical decision points.
- Keep current with the latest laboratory best practices with educational content supplied in our participant summary reports.
- Gain confidence in your results by comparing performance against the largest peer groups.

Blood Gas, Critical Care, and Oximetry

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Critical Care Blood Gas AQ, AQ2, AQ3, AQ4

Analyte	Program Code				Challenges per Shipment
	AQ	AQ2	AQ3	AQ4	
Calcium, ionized	▮	▮	▮	▮	2
Chloride	▮	▮	▮	▮	5
Hematocrit	▮	▮	▮	▮	5
Hemoglobin, estimated	▮	▮	▮	▮	5
Lactate	▮	▮	▮	▮	2
Magnesium, ionized	▮	▮			2
pCO_2	▮	▮	▮	▮	5
pH	▮	▮	▮	▮	5
pO_2	▮	▮	▮	▮	5
Potassium	▮	▮	▮	▮	5
Sodium	▮	▮	▮	▮	5
Creatinine		▮		▮	5
Glucose		▮		▮	5
Urea nitrogen (BUN)		▮		▮	5

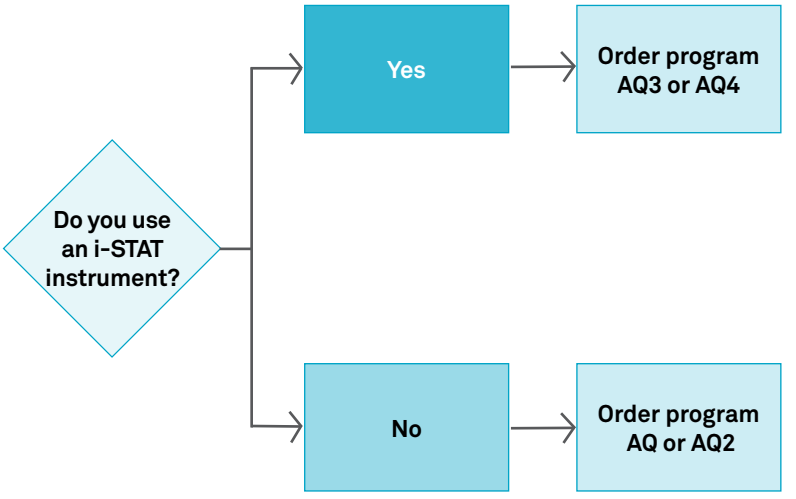
For multiple instrument reporting options, see the Quality Cross Check programs, AQQ, AQ2Q, AQ3Q, and AQ4Q, on page 95.

It is not appropriate to report hemoglobin and hematocrit results by co-oximetry in these programs.

Program Information

- AQ, AQ2 - Five 2.5-mL aqueous specimens in duplicate and five 2.5-mL specimens for hematocrit testing in duplicate; appropriate for all methods except i-STAT®
- AQ3, AQ4 - Five 2.5-mL specimens in duplicate for i-STAT methods only
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

CE credit



Quality Cross Check—Blood Gas AQQ, AQ2Q, AQ3Q, AQ4Q

Analyte	Program Code				Challenges per Shipment
	AQQ	AQ2Q	AQ3Q	AQ4Q	
Calcium, ionized	▮	▮	▮	▮	3
Chloride	▮	▮	▮	▮	3
Hematocrit	▮	▮	▮	▮	3
Hemoglobin, estimated	▮	▮	▮	▮	3
Lactate	▮	▮	▮	▮	3
Magnesium, ionized	▮	▮			3
pCO_2	▮	▮	▮	▮	3
pH	▮	▮	▮	▮	3
pO_2	▮	▮	▮	▮	3
Potassium	▮	▮	▮	▮	3
Sodium	▮	▮	▮	▮	3
Creatinine		▮		▮	3
Glucose		▮		▮	3
Urea nitrogen (BUN)		▮		▮	3

It is not appropriate to report hemoglobin or hematocrit by co-oximetry in this program.

These programs do not meet regulatory requirements for proficiency testing; see programs AQ and AQ2-AQ4 on page 94. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- AQQ, AQ2Q - Three 2.5-mL specimens in triplicate and three 2.5-mL specimens for hematocrit testing in triplicate; appropriate for all methods except i-STAT®
- AQ3Q, AQ4Q - Three 1.7-mL specimens in triplicate for i-STAT methods only
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Blood Oximetry SO

Analyte	Program Code	Challenges per Shipment
	SO	
Carboxyhemoglobin	▮	5
Hematocrit, estimated	▮	5
Hemoglobin, total	▮	5
Methemoglobin	▮	5
Oxyhemoglobin	▮	5

Program Information

- Five 1.8-mL stabilized human hemoglobin solution specimens
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

Additional Information

- This program is not compatible with Oxicom-2000, -2100, or -3000 whole blood oximeters.
- For multiple instrument reporting options, see the Quality Cross Check program, SOQ, below.

Quality Cross Check—Blood Oximetry SOQ

Analyte	Program Code	Challenges per Shipment
	SOQ	
Carboxyhemoglobin	▮	3
Hematocrit, estimated	▮	3
Hemoglobin, total	▮	3
Methemoglobin	▮	3
Oxyhemoglobin	▮	3

Program Information

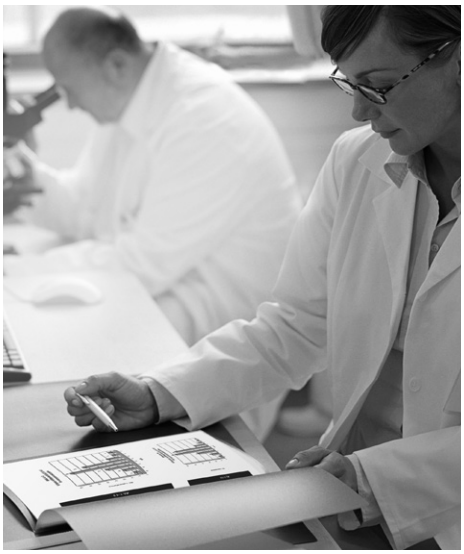
- Three 1.2-mL liquid specimens in triplicate
- Report up to three instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

This program does not meet regulatory requirements for proficiency testing; see program SO, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

9 Toxicology



Use the CAP's Participant Summary Reports to take your laboratory to the next level.

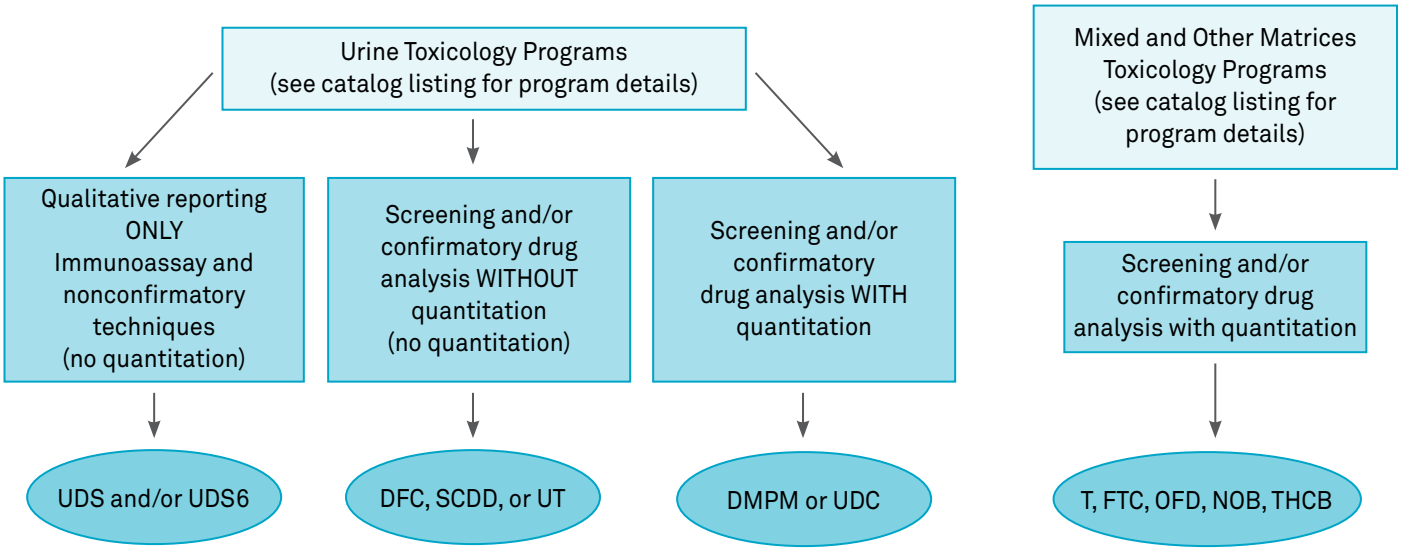
- Compare your results and methods against large peer groups for greater diagnostic confidence.
- Review the extensive discussion to further educate staff on testing trends and best practices.
- Earn continuing education credit with content that aligns with the proficiency testing challenge.

New Analyte/Drug Additions NEW

Toxicology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Use this flowchart as a guide for ordering appropriate toxicology programs for your laboratory's testing menu.



Toxicology T

Analyte	Program Code	Challenges per Shipment
	T	
See drug listing on next page	▮	5

Program Information

- A total of five specimens consisting of 20.0-mL liquid serum and 50.0-mL liquid urine specimens
- For laboratories performing qualitative and quantitative drug analysis on serum and qualitative analysis on urine specimens
- Three shipments per year

Urine Toxicology UT

Analyte	Program Code	Challenges per Shipment
	UT	
See drug listing on next page	▮	5

Program Information

- Five 50.0-mL liquid urine specimens
- For laboratories performing qualitative drug analysis with qualitative confirmatory testing
- Three shipments per year

T and UT Programs Drug Listing

Challenges will include a mix of drugs from the list below.

6-acetylmorphine (6-AM)
7-aminoclonazepam
7-aminoflunitrazepam
7-hydroxymitragynine NEW
Acetaminophen
Alpha-hydroxyalprazolam
Alprazolam
Amitriptyline
Amphetamine
Amphetamine group
Aripiprazole
Atenolol
Atropine
Barbiturate group
Benzodiazepine group
Benzoylecgonine
Brompheniramine
Buprenorphine
Bupropion
Butalbital
Cannabinoids
Carbamazepine
Carbamazepine-10, 11-epoxide
Carisoprodol
Chlordiazepoxide
Chlorpheniramine
Citalopram
Clomipramine
Clonazepam
Clozapine
Cocaethylene
Cocaine
Codeine
Cyclobenzaprine
Delta-9-THC (serum only)
Delta-9-THC-COOH
Demoxepam
Desipramine
Desmethylclomipramine
Desmethylcyclobenzaprine*
Desmethylsertraline
Dextromethorphan
Diazepam
Dihydrocodeine
Diltiazem
Diphenhydramine
Doxepin
Doxylamine
Duloxetine
Ecgonine methyl ester
Ephedrine
Fentanyl
Flunitrazepam
Fluoxetine
Gabapentin
Hydrocodone
Hydromorphone
Hydroxybupropion
Hydroxyzine
Ibuprofen
Imipramine
Ketamine
Lamotrigine
Levetiracetam
Levorphanol
Lidocaine
Lorazepam
Meperidine
Mephedrone
Meprobamate
Methadone
Methadone metabolite (EDDP)
Methamphetamine
Methylenedioxy-amphetamine (MDA)
Methylenedioxy-methamphetamine (MDMA)
Methylenedioxy-pyrovalerone (MDPV)
Methylphenidate
Metoprolol
Mirtazapine
Mitragynine (Kratom) NEW
Morphine
N-desmethyltramadol
Naproxen
Norbuprenorphine
Norchlordiazepoxide
Norclomipramine
Norcodeine
Norcyclobenzaprine*
Nordiazepam
Nordoxepin
Norfentanyl
Norfluoxetine
Norketamine
Normeperidine
Normirtazapine
Nornaloxone
Noroxycodone
Norpropoxyphene
Norsertraline
Nortrimipramine
Nortriptyline
Norverapamil
O-desmethyltramadol
Olanzapine
Opiate group
Oxazepam
Oxycodone
Oxymorphone
Paroxetine
Pentobarbital
Phencyclidine
Pheniramine
Phenobarbital
Phentermine
Phenylephrine
Phenytoin
Pregabalin
Propoxyphene
Propranolol
Pseudoephedrine
Quetiapine
Salicylates
Sertraline
Temazepam
Topiramate
Tramadol
Trazodone
Tricyclic group
Trimipramine
Valproic acid
Venlafaxine
Verapamil
Zolpidem

*Same compound

CAP/AACC Urine Drug Testing, Screening UDS, UDS6

Analyte	Program Code	
	Challenges per Shipment	
	UDS	UDS6 Limited
6-acetylmorphine (6-AM)	5	3
Acetaminophen	5	3
Amphetamine	5	3
Amphetamine/methamphetamine group	5	3
Barbiturate group	5	3
Benzodiazepine group	5	3
Benzoylecgonine/cocaine metabolites	5	3
Buprenorphine and metabolites	5	3
Cannabinoids	5	3
Ethanol	5	3
Fentanyl	5	3
Hydrocodone	5	3
Lysergic acid diethylamide (LSD)	5	3
Meperidine	5	3
Meprobamate/Carisoprodol	5	3
Methadone	5	3
Methadone metabolite (EDDP)	5	3
Methamphetamine	5	3
Methaqualone	5	3
Methylenedioxymethamphetamine (MDMA)	5	3
Opiate group	5	3
Oxycodone	5	3
Phencyclidine	5	3
Propoxyphene	5	3
Tramadol	5	3
Tricyclic group	5	3

Program Information

- UDS - Five 10.0-mL liquid urine specimens; three shipments per year
- UDS6 - Three 10.0-mL liquid urine specimens; two shipments per year
- For laboratories performing drugs of abuse testing on urine specimens using immunoassay or other screening techniques only
- Participants will have access to the AACC quarterly newsletter, *Clinical & Forensic Toxicology News*

AACC

Urine Drug Adulterant/Integrity DAI		
Analyte	**Program Code**	**Challenges per Shipment**
	DAI	
Creatinine	▮	3
Glutaraldehyde	▮	3
Nitrite	▮	3
Oxidants	▮	3
pH	▮	3
Specific gravity	▮	3

Program Information

- Three 25.0-mL urine specimens
- Two shipments per year

Clinical Toxicology Testing: A Guide for Laboratory Professionals, Second Edition (PUB227)

This book is a practical guide to directing hospital toxicology laboratory operations. This edition features expanded sections on testing in the clinical setting, methodologies, and more user-friendly information on specific analytes. It provides the reader with a comprehensive view of what is needed—and expected—when offering a clinical toxicology service.

Contents include:

- Toxicology testing in the clinical setting, including new chapters on pediatric testing and chronic opioid therapy
- Toxicokinetics and methodologies, with new and expanded information on laboratory-developed tests, screening assays, targeted tests, and oral fluids and alternative matrices
- Specific analytes, including novel psychoactive substances and the use of medical cannabis
- Appendices on such useful topics as urine and serum screens, therapeutic drug monitoring, and proficiency testing

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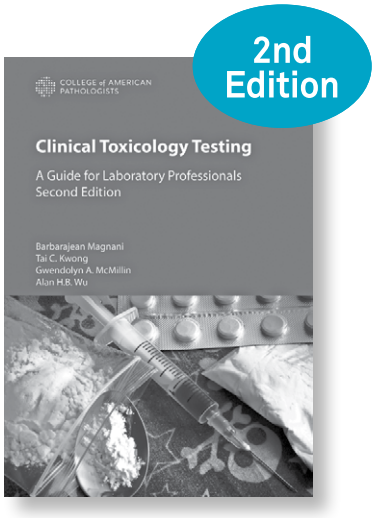

Item number: PUB227
Softcover; 2020

CAP/AACC Forensic Urine Drug Testing, Confirmatory UDC

Analyte	Program Code	Challenges per Shipment
	UDC	
6-acetylmorphine (6-AM)	▮	10
Alpha-hydroxyalprazolam	▮	10
Amphetamine	▮	10
Benzoylecgonine	▮	10
Buprenorphine	▮	10
Butalbital	▮	10
Codeine	▮	10
Delta-9-THC-COOH	▮	10
Fentanyl	▮	10
Hydrocodone	▮	10
Hydromorphone	▮	10
Lorazepam	▮	10
Methadone	▮	10
Methadone metabolite (EDDP)	▮	10
Methamphetamine	▮	10
Methaqualone	▮	10
Methylenedioxyamphetamine (MDA)	▮	10
Methylenedioxyethylamphetamine (MDEA)	▮	10
Methylenedioxymethamphetamine (MDMA)	▮	10
Morphine	▮	10
Norbuprenorphine	▮	10
Nordiazepam	▮	10
Norfentanyl	▮	10
Norpropoxyphene	▮	10
Oxazepam	▮	10
Oxycodone	▮	10
Oxymorphone	▮	10
Phencyclidine	▮	10
Phenobarbital	▮	10
Propoxyphene	▮	10
Secobarbital	▮	10
Temazepam	▮	10
Adulterant/Integrity Indicator		
Creatinine	▮	10
pH	▮	10
Specific gravity	▮	10

Program Information

- Ten 50.0-mL liquid urine specimens
- For laboratories that perform both screening and confirmatory testing, including quantitation, for drugs of abuse in urine specimens; laboratories are asked to report creatinine, pH, and specific gravity for each specimen to ensure specimen adulteration has not occurred
- Participants will have access to the AACC quarterly newsletter, *Clinical & Forensic Toxicology News*
- Four shipments per year

AACC

Oral Fluid for Drugs of Abuse OFD

Analyte	Program Code	Challenges per Shipment
	OFD	
Amphetamine Group	▮	5
Amphetamine	▮	5
Methamphetamine	▮	5
Methylenedioxyamphetamine (MDA)	▮	5
Methylenedioxymethamphetamine (MDMA)	▮	5
Benzodiazepine Group	▮	5
Alprazolam	▮	5
Diazepam	▮	5
Nordiazepam	▮	5
Oxazepam	▮	5
Temazepam	▮	5
Buprenorphine	▮	5
Buprenorphine and norbuprenorphine	▮	5
Cocaine and/or Metabolite	▮	5
Benzoylecgonine	▮	5
Cocaine	▮	5
Cannabinoids	▮	5
Delta-9-THC	▮	5
Delta-9-THC-COOH	▮	5
Cotinine NEW	▮	5
Fentanyl and/or Metabolite	▮	5
Fentanyl	▮	5
Norfentanyl	▮	5
Methadone	▮	5
Opiate Group	▮	5
6-acetylmorphine (6-AM)	▮	5
Codeine	▮	5
Hydrocodone	▮	5
Hydromorphone	▮	5
Morphine	▮	5
Oxycodone	▮	5
Oxymorphone	▮	5
Phencyclidine (PCP)	▮	5

Program Information

- Five 2.0-mL oral fluid specimens
- For laboratories performing drug screening, confirmation, and quantitation
- Four shipments per year

Vitreous Fluid, Postmortem VF

Analyte	Program Code	Challenges per Shipment
	VF	
Acetone	▮	3
Chloride	▮	3
Creatinine	▮	3
Ethanol	▮	3
Glucose	▮	3
Potassium	▮	3
Sodium	▮	3
Vitreous urea nitrogen	▮	3

Program Information

- Three 5.0-mL synthetic vitreous fluid specimens
- For forensic and other toxicology laboratories that perform quantitative analysis of vitreous fluid
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Serum Drug Screening SDS

Analyte	Program Code	Challenges per Shipment
	SDS	
Acetaminophen, quantitative	▮	3
Acetone, semiquantitative and qualitative	▮	3
Barbiturate group, qualitative	▮	3
Benzodiazepine group, qualitative	▮	3
Salicylate, quantitative	▮	3
Total tricyclic antidepressants, qualitative	▮	3

Program Information

- Three 2.0-mL serum specimens
- For laboratories that perform serum drug screening using immunoassay or other screening techniques
- Two shipments per year

CAP/AACC Alcohol/Volatiles AL1, AL2

Analyte	Program Code		Challenges per Shipment
	AL1 Whole Blood	AL2* Serum	
Acetone, quantitative	▮	▮	5
Ethanol, quantitative	▮	▮	5
Ethylene glycol, qualitative and quantitative	▮	▮	5
Isopropanol, quantitative	▮	▮	5
Methanol, quantitative	▮	▮	5

*The continuing education credit applies to AL2.

Program Information

- AL1 - Five 5.0-mL liquid whole blood specimens; conventional reporting
- AL2 - Five 2.0-mL liquid serum specimens; conventional and International System of Units (SI) reporting offered
- Three shipments per year

CE credit AACC

Ethanol Biomarkers ETB

Analyte	Program Code	Challenges per Shipment
	ETB	
Ethyl glucuronide (EtG), qualitative and quantitative	▮	3
Ethyl sulfate (EtS), quantitative	▮	3

Program Information

- Three 10.0-mL synthetic urine specimens
- Two shipments per year

CAP/AACC Blood Lead BL

Analyte	Program Code	Challenges per Shipment
	BL	
Lead	▮	5

This program meets the Occupational Safety and Health Administration (OSHA) requirements for proficiency testing [OSHA lead standards-29 CFR 1910.1025(j)(2)(iii)].

Program Information

- Five 6.0-mL liquid nonhuman whole blood specimens
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

CE credit AACC

Cadmium CD

Analyte	Program Code	Challenges per Shipment
	CD	
Beta-2-microglobulin, urine	▮	3
Cadmium, urine	▮	3
Cadmium, whole blood	▮	3
Creatinine, urine	▮	3

This program meets the Occupational Safety and Health Administration (OSHA) guidelines for proficiency testing (OSHA standard-29 CFR 1910.1027AppF).

Program Information

- Three 6.0-mL whole blood specimens and three 12.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- Six shipments per year

CE credit

Nicotine and Tobacco Alkaloids NTA

Analyte	Program Code	Challenges per Shipment
	NTA	
Anabasine	▮	3
Cotinine	▮	3
Nicotine	▮	3

Program Information

- Three 25.0-mL urine specimens
- Designed for laboratories that qualitatively and/or quantitatively test for anabasine, cotinine, and/or nicotine in urine
- Two shipments per year

Trace Metals R

Analyte	Program Code	Challenges per Shipment
	R	
Aluminum	▮	3
Chromium	▮	3
Copper	▮	3
Manganese	▮	3
Selenium	▮	3
Zinc	▮	3

Program Information

- Three 6.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Trace Metals, Urine TMU

Analyte	Program Code	Challenges per Shipment
	TMU	
Aluminum	▮	2
Arsenic	▮	2
Chromium	▮	2
Cobalt	▮	2
Copper	▮	2
Lead	▮	2
Manganese	▮	2
Mercury	▮	2
Selenium	▮	2
Thallium	▮	2
Zinc	▮	2

Program Information

- Two 25.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- For laboratories that monitor trace metals at normal and toxic levels
- Two shipments per year

CE credit

Trace Metals, Whole Blood TMWB

Analyte	Program Code	Challenges per Shipment
	TMWB	
Aluminum	▮	3
Arsenic, total	▮	3
Chromium	▮	3
Cobalt	▮	3
Copper	▮	3
Manganese	▮	3
Mercury	▮	3
Selenium	▮	3
Thallium	▮	3
Zinc	▮	3

Program Information

- Three 6.0-mL whole blood specimens
- Conventional and International System of Units (SI) reporting offered
- For laboratories that monitor trace metals at normal and toxic levels
- Two shipments per year

CE credit

Forensic Toxicology, Criminalistics FTC

Analyte	Program Code	Challenges per Shipment
	FTC	
See drug listing below	▮	5

Program Information

- Five 20.0-mL whole blood specimens
- For crime and hospital laboratories that have forensic toxicology divisions performing qualitative and quantitative analysis of drugs in whole blood specimens
- Three shipments per year

FTC Program Drug Listing

Challenges will include a mix of drugs from the list below.

6-acetylmorphine (6-AM)
7-aminoclonazepam
7-aminoflunitrazepam
7-hydroxymitragynine NEW
Acetaminophen
Alpha-hydroxyalprazolam
Alprazolam
Amitriptyline
Amphetamine
Aripiprazole
Atenolol
Atropine
Benzoylecgonine
Brompheniramine
Buprenorphine
Bupropion
Butalbital
Carbamazepine
Carbamazepine-10, 11-epoxide
Carisoprodol
Chlordiazepoxide
Chlorpheniramine
Citalopram
Clomipramine
Clonazepam
Clozapine
Cocaethylene
Cocaine
Codeine
Cyclobenzaprine*
Delta-9-THC
Delta-9-THC-COOH
Demoxepam
Desipramine
Desmethylclomipramine
Desmethylsertraline
Dextromethorphan
Diazepam
Dihydrocodeine
Diltiazem
Diphenhydramine
Doxepin
Doxylamine
Duloxetine
Ecgonine ethyl ester
Ecgonine methyl ester
Ephedrine
Fentanyl*
Flunitrazepam
Fluoxetine
Gabapentin
Gamma-hydroxybutyrate (GHB)
Hydrocodone
Hydromorphone
Hydroxybupropion
Hydroxyzine
Ibuprofen
Imipramine
Ketamine
Lamotrigine
Levetiracetam
Lidocaine
Lorazepam
Lysergic acid diethylamide (LSD)
Meperidine*
Mephedrone
Meprobamate
Methadone
Methadone metabolite (EDDP)
Methamphetamine
Methylenedioxyamphetamine (MDA)
Methylenedioxymethamphetamine (MDMA)
Methylenedioxypyrovalerone (MDPV)
Methylphenidate
Metoprolol
Mirtazapine
Mitragynine (Kratom) NEW
Morphine*
N-desmethyltramadol
Naproxen
Norbuprenorphine
Norchlordiazepoxide
Norclomipramine
Norcodeine
Norcyclobenzaprine
Nordiazepam
Nordoxepin
Norfentanyl
Norfluoxetine
Norketamine
Normeperidine
Normirtazapine NEW
Noroxycodone
Norpropoxyphene
Norsertraline
Nortrimipramine
Nortriptyline
Norverapamil
O-desmethyltramadol
Olanzapine
Oxazepam
Oxycodone
Oxymorphone
Paroxetine
Pentobarbital
Phencyclidine
Phenethylamine
Pheniramine
Phenobarbital
Phentermine
Phenylephrine
Phenytoin
Pregabalin
Propoxyphene
Propranolol
Pseudoephedrine
Quetiapine
Quinine
Ranitidine
Salicylate
Sertraline
Strychnine
Temazepam
Topiramate
Tramadol
Trazodone
Trimipramine
Valproic Acid
Venlafaxine
Verapamil
Zolpidem

*and/or metabolite(s)

Synthetic Cannabinoid/Designer Drugs SCDD

Analyte	Program Code	Challenges per Shipment
	SCDD	
Synthetic cannabinoid/designer drugs	▮	3

Synthetic cannabinoids and designer drug stimulants are widespread and constantly changing in respect to the available chemical moieties. In order to stay contemporary, the CAP has decided to modify the compounds in this program in accordance with the appearance and prevalence of new compounds.

Program Information

- Three 10.0-mL urine specimens
- For laboratories that perform screening and confirmatory testing for the compounds found in this program
- Two shipments per year

SCDD Program Drug Listing

Challenges will include a mix of drugs.

For the most current list of drugs, please go to cap.org. Under the Laboratory Improvement tab, click on Catalog and Ordering Information. The list is located under the PT Order Supplements header.

Novel Opioids and Benzodiazepines NOB

Analyte	Program Code	Challenges per Shipment
	NOB	
Novel opioids and benzodiazepines	▮	3

Program Information

- Three 15.0-mL whole blood specimens
- For forensic and toxicology laboratories that perform qualitative and/or quantitative analysis of synthetic opioids and benzodiazepines
- Two shipments per year

NOB Program Drug Listing

Challenges will include a mix of drugs.

For the most current list of drugs, please go to cap.org. Under the Laboratory Improvement tab, click on Catalog and Ordering Information. The list is located under the PT Order Supplements header.

Blood Cannabinoids THCB

Analyte	Program Code	Challenges per Shipment
	THCB	
Delta-9-THC	▮	3
Delta-9-THC-COOH	▮	3
11-hydroxy-THC	▮	3

Program Information

- Three 10.0-mL whole blood specimens
- For toxicology laboratories that perform qualitative and/or quantitative analysis of cannabinoids in blood
- Two shipments per year

Antifungal Drugs Monitoring AFD

Analyte	Program Code	Challenges per Shipment
	AFD	
Fluconazole	▮	3
Itraconazole	▮	3
Posaconazole	▮	3
Voriconazole	▮	3

Program Information

- Three 2.0-mL serum specimens
- For laboratories performing quantitative analysis of anti-fungal agents
- Two shipments per year

We are here to help. Fast Focus on Compliance—the inspector's quick guide.

A resource for laboratories and inspectors alike, our Fast Focus on Compliance mini-training vignettes help you prepare for future laboratory inspections by gaining a clear understanding of the requirements and receiving insight into areas that need improvement:

- Cite or Recommend? Know Before you Go!
- Inspecting Safety: Is the Lab in Jeopardy?
- Analytical Measurement Range (AMR): Inspecting Far and Wide
- What Did You REALLY Mean ... How to Write a "Good" Deficiency
- Inspecting Alternative Performance Assessment (APA) in Laboratories Subject to US Regulations
- Presenting Director Assessment Deficiencies: Best Practices

Access more than 20 concentrated topics online by searching *Fast Focus on Compliance* at cap.org

Drug Monitoring for Pain Management DMPM

Analyte	Program Code	Challenges per Shipment
	DMPM	
See drug listing below	▮	3

Program Information

- Three 40.0-mL urine specimens
- For laboratories offering qualitative, confirmatory, and/or quantitative urine drug analysis for pain management
- Includes clinical cases and questions along with detailed descriptions of how to interpret test results
- Two shipments per year

DMPM Program Drug Listing

Challenges will include a mix of drugs from the list below.

Amphetamine group
6-acetylmorphine (6-AM)
7-aminoclonazepam
Alpha-hydroxyalprazolam
Alprazolam
Amphetamine
Barbiturate group
Benzodiazepine group
Benzoylecgonine
Buprenorphine
Buprenorphine and/or metabolites
Butalbital
Cannabinoids
Carisoprodol
Carisoprodol and/or metabolites
Clonazepam
Cocaine
Cocaine and/or metabolites
Codeine
Delta-9-THC-COOH
Diazepam
Fentanyl
Fentanyl and/or metabolites
Gabapentin
Hydrocodone
Hydromorphone
l-Amphetamine
l-Methamphetamine
Lorazepam
Lorazepam glucuronide
Meperidine
Meperidine and/or metabolites
Meprobamate
Methadone
Methadone metabolite (EDDP)
Methamphetamine
Methylenedioxyamphetamine (MDA)
Methylenedioxymethamphetamine (MDMA)
Morphine
N-desmethyltramadol
Norbuprenorphine
Nordiazepam
Norfentanyl
Norhydrocodone
Normeperidine
Noroxycodone
Noroxymorphone
Norpropoxyphene
O-desmethyltramadol
Opiate group
Oxazepam
Oxycodone
Oxymorphone
Phenobarbital
Pregabalin
Propoxyphene
Propoxyphene and/or metabolites
Tapentadol
Tapentadol-O-sulfate
Temazepam
Tramadol
Tramadol and/or metabolites

Drug-Facilitated Crime DFC

Analyte	Program Code	Challenges per Shipment
	DFC	
See drug listing below	▮	3

Program Information

- Three 25.0-mL urine specimens
- For laboratories performing qualitative urine drug analysis with confirmation testing
- Designed for laboratories performing testing for drugs associated with drug-facilitated crimes, which target drugs at much lower concentrations than in other toxicology programs
- Two shipments per year

DFC Program Drug Listing

Challenges will include a mix of drugs from the list below.

4-hydroxytriazolam
7-aminoclonazepam
7-aminoflunitazepam
Alpha-hydroxyalprazolam
Amitriptyline
Amobarbital
Amphetamine
Benzoylecgonine
Bromazepam
Brompheniramine
Butalbital
Carisoprodol
Chlorpheniramine
Citalopram/escitalopram
Clobazam
Clonidine
Clozapine
Codeine
Cyclobenzaprine
Delta-9-THC-COOH
Desipramine
Dextromethorphan
Diphenhydramine
Doxepin
Doxylamine
Estazolam
Etizolam
Fentanyl
Fluoxetine
Gabapentin
Gamma hydroxybutyrate (GHB)
Hydrocodone
Hydromorphone
Hydroxyzine
Imipramine
Ketamine
Lorazepam
Meperidine
Meprobamate
Methadone
Methadone metabolite (EDDP)
Methamphetamine
Methylenedioxyamphetamine (MDA)
Methylenedioxymethamphetamine (MDMA)
Midazolam
Morphine
Norbuprenorphine
Nordoxepin
Norfentanyl
Norfluoxetine
Norketamine
Normeperidine
Norpropoxyphene
Norsertraline
Nortriptyline
Norvenlafaxine
O-desmethyltramadol
Oxazepam
Oxycodone
Oxymorphone
Paroxetine
Pentobarbital
Phencyclidine (PCP)
Phenobarbital
Phenytoin
Promethazine
Propoxyphene
Quetiapine
Scopolamine
Secobarbital
Sertraline
Tapentadol
Temazepam
Tetrahydrozoline
Topiramate
Tramadol
Trazodone metabolite (m-CPP)
Valproic Acid
Venlafaxine
Zaleplon
Ziprasidone
Zolpidem
Zopiclone/Eszopiclone

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Toxicology, Validated Material

Validated Material	Program Code	Corresponding Survey	Page
Urine Drug Testing, Screening	UDSM	UDS	100

Program Information

- Five 10.0-mL liquid urine specimens
- Three shipments per year

Laboratory Administration for Pathologists, Second Edition (PUB312)

Designed to provide pathologists with an overview of the fundamentals of management and leadership, *Laboratory Administration for Pathologists* addresses the specific role and responsibility of the pathologist in directing the laboratory.

- Provides information for both clinical and anatomic pathology practice
- Includes an overview of patient safety not available in the first edition
- Covers financial management of the laboratory and the pathology practice
- Geared for trainees and those entering practice while appropriate for all pathologists

Add it to your order.

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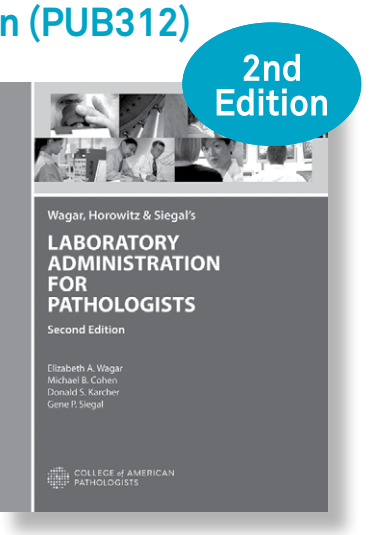


Item number: PUB312
Hardcover; 296 pages; 2019

10 Accuracy-Based Programs

Make accuracy your number one focus.

- Accuracy-Based Programs use challenge specimens that are matrix-related, bias-free, and have target values traceable to certified reference materials.
- Only the CAP's Accuracy-Based Programs allow laboratories to compare their test results with reference method results.

Accuracy-Based Programs

New Analyte Additions NEW

Accuracy-Based Programs

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Accuracy-Based Lipids ABL

Analyte	Program Code	Challenges per Shipment
	ABL	
Apolipoprotein A1*	▮	3
Apolipoprotein B*	▮	3
Cholesterol*	▮	3
HDL cholesterol*	▮	3
Non-HDL cholesterol	▮	3
LDL cholesterol	▮	3
Lipoprotein (a)	▮	3
Triglycerides*	▮	3

*This analyte will be evaluated against the reference method.

Program Information

- Three 1.0-mL human serum specimens
- Two shipments per year

Accuracy-Based Vitamin D ABVD

Analyte	Program Code	Challenges per Shipment
	ABVD	
25-OH vitamin D (D2 and D3)	▮	3
Calcium	▮	3

Additional Information

- The Centers for Disease Control and Prevention (CDC) will establish reference targets using isotope-dilution LC-MS/MS method.
- Specimens are collected by a modified application of Clinical and Laboratory Standards Institute Guideline CLSI C37-A, *Preparation and Validation of Commutable Frozen Human Serum Pools as Secondary Reference Materials for Cholesterol Measurement Procedures; Approved Guideline.*

Program Information

- Three 1.0-mL liquid human serum specimens
- Serum is from multi-donor endogenous pools
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Accuracy-Based Testosterone, Estradiol ABS

Analyte	Program Code	Challenges per Shipment
	ABS	
Albumin	▮	3
Cortisol	▮	3
Estradiol	▮	3
Follicle-stimulating hormone (FSH)	▮	3
Luteinizing hormone (LH)	▮	3
Prostate-specific antigen (PSA), total NEW	▮	3
Sex hormone-binding globulin (SHBG)	▮	3
Testosterone	▮	3
Thyroid-stimulating hormone (TSH)	▮	3

The Centers for Disease Control and Prevention (CDC) will set target values for testosterone and estradiol using the established reference methods.

Program Information

- Three 1.0-mL human serum specimens
- Two shipments per year

Accuracy-Based Urine ABU

Analyte	Program Code	Challenges per Shipment
	ABU	
Calcium	▮	3
Creatinine	▮	3
Protein, total	▮	3
Urine albumin, quantitative	▮	3
Urine albumin: creatinine ratio	▮	3

Additional Information

- Target values for albumin are obtained by LC-MS/MS after trypsin digestion, performed by the Renal Testing Laboratory, Mayo Clinic, Rochester, MN, using calibration materials prepared from human serum albumin (>99% pure).
- Other analytes will be compared by peer group for harmonization purposes.

Program Information

- Three 5.0-mL human urine specimens
- Two shipments per year

Creatinine Accuracy Calibration Verification/Linearity LN24

Analyte	Program Code	
	LN24	LN24 Target Range
Creatinine	▮	0.6–4.0 mg/dL
Estimated glomerular filtration rate (eGFR)	▮	

Program Information

- Six 1.0-mL human serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

The College of American Pathologists (CAP) and the National Kidney Disease Education Program (NKDEP) have an initiative to harmonize clinically reported creatinine values. This initiative is analogous to what the federal health agencies and the clinical laboratory community did to improve the accuracy of cholesterol and glycohemoglobin testing.

Harmonized Thyroid ABTH

Analyte	Program Code	Challenges per Shipment
	ABTH	
Triiodothyronine (T3), free	▮	3
Triiodothyronine (T3), total	▮	3
Thyroxine (T4), free	▮	3
Thyroxine (T4), total	▮	3
Thyroid-stimulating hormone (TSH)	▮	3

Program Information

- Three 1.0-mL frozen human serum specimens
- Two shipments per year

Additional Information

- Analytes will be evaluated using harmonization.
- Specimens are collected by a modified application of Clinical and Laboratory Standards Institute Guideline CLSI C37-A, *Preparation and Validation of Commutable Frozen Human Serum Pools as Secondary Reference Materials for Cholesterol Measurement Procedures; Approved Guideline.*

Hemoglobin A_{1c} Accuracy Calibration Verification/Linearity LN15

Analyte	Program Code	
	LN15	LN15 Target Range
Hemoglobin A_{1c}	▮	5%–12%

Program Information

- Six 0.8-mL liquid human whole blood specimens
- Two shipments per year

CAP-assigned target values derived from Hemoglobin A_{1c} measurements assayed by National Glycohemoglobin Standardization Program (NGSP) secondary reference laboratories.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Hemoglobin A_{1c} GH2, GH5

Analyte	Challenges per Shipment	
	Program Code	
	GH2	GH5
Hemoglobin A_{1c}	3	5

Additional Information

- These programs will be evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method.
- The CAP's Accreditation Programs require all accredited laboratories performing non-waived testing for Hemoglobin A_{1c} to complete 15 PT challenges per year.
- For multiple instrument reporting options, see the Quality Cross Check program, GHQ on page 65.
- These programs have limited stability. Laboratories outside the US or Canada should consider purchase of GH5I, which has longer stability.

Program Information

- GH2 - Three 0.8-mL liquid human whole blood specimens; two shipments per year
- GH5 - Five 0.8-mL liquid human whole blood specimens; three shipments per year

Accuracy-Based Glucose, Insulin, and C-Peptide ABGIC

Analyte	Program Code	Challenges per Shipment
	ABGIC	
C-peptide	▮	3
Glucose	▮	3
Insulin	▮	3

Additional Information

- Target values are based upon the isotope-dilution gas chromatography-mass spectrometry reference measurement procedure for glucose performed by the CDC Reference Laboratory, Division of Laboratory Sciences, Centers for Disease Control and Prevention (Atlanta, GA).
- Target values for C-peptide are established by isotope-dilution mass spectrometry performed at the University of Missouri, Diabetes Diagnostic Laboratory.

Program Information

- Three 1.0-mL serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

The CAP is your trusted calibration verification and linearity partner, offering a comprehensive menu of programs for diagnostic confidence.

- **Expedited results**—View your linearity evaluation for most CVL programs within two business days of data submission.
- **Customized report package**—Let our team of biostatisticians perform the statistical analysis of your results so you do not have to.
- **Objective Assessment**—Maximize confidence in instrument calibration by using peer group data for a view beyond your laboratory.

See the Instrumentation Verification Tools section of this catalog to determine programs that best fit your laboratory's CVL needs.

Validated Materials

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Chemistry, Validated Materials

Validated Material	Validated Material Code	Corresponding Survey	Page
General Chemistry and Therapeutic Drugs	CZVM	CZ	56-58
Cerebrospinal Fluid	MVM	M	76
Urine Chemistry—General	UVM	U	70

Coagulation—Limited, Validated Material

Validated Material	Validated Material Code	Corresponding Survey	Page
Coagulation—Limited	CGM	CGL	162

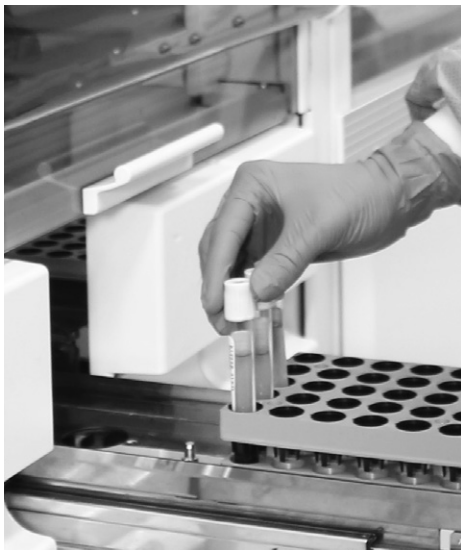
Endocrinology, Validated Materials

Validated Material	Validated Material Code	Corresponding Survey	Page
Ligand—General	KVM	K	84
Sex Hormones	YVM	Y	86

Toxicology, Validated Material

Validated Material	Validated Material Code	Corresponding Survey	Page
Urine Drug Testing, Screening	UDSM	UDS	100

11 Instrumentation Verification Tools



Access your expedited linearity results.

- Expedited linearity evaluations are complimentary and available for most Calibration Verification/ Linearity programs.
- You can view your linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Instrumentation Verification Tools

New Programs NEW

Program Changes

Discontinued Programs

Calibration Verification/Linearity

The CAP CVL Program

The CAP is your trusted calibration verification and linearity partner. Our CVL program will help you meet both CLIA regulations and CAP Laboratory Accreditation Program requirements for calibration and analytical measurement range verification under 42 CFR493.1255(bX3). Do not let instrument problems impact your patient results; use the calibration verification and linearity studies to ensure your instrument and method are performing to their optimal levels.

With your enrollment in the CAP CVL program you will receive:

- **Testing Kit**
  - Kit instructions—Contain important information to help you complete testing and accurately report your results
  - Specimens—The majority of CAP CVL programs offer human-based materials to closely mimic your patient results
- **Customized Report Package**
  - Executive Summary—A quick overview of both your calibration verification and linearity results for all reported analytes
  - Calibration Verification Evaluation
  - Linearity Evaluation
    - Rapid result turnaround is complimentary for most CVL programs. View your expedited linearity evaluations within two business days of submission by logging into e-LAB Solutions Suite.
  - Linearity Troubleshooting Report
  - Participant Summary—A summary of laboratory performance that includes peer group statistics and enhanced diagnostic information for early insight into potential problems
- **Additional Tools**
  - Calibration Verification/Linearity Program User's Guide—Get assistance in interpreting your evaluations and reports as well as helpful troubleshooting information with suggested actions. Also available online by logging into e-LAB Solutions Suite
  - Calibration Verification Troubleshooting Guide—The guide provides suggested actions if you receive a calibration verification result of Different, or if your evaluation result is Verified over a range that does not include all of your reported results
  - Calibration Verification/Linearity Surveys Investigation Checklist for Problematic Results—Interpretative checklists are included to help with troubleshooting and documentation

Your Total Calibration Verification/Linearity (CVL) Solution

CVL Program	Page No.	Corresponding Proficiency Testing Program	Page No.
LN2 - Chemistry, Lipid, Enzyme CVL	122	C1, C3/C3X, C4, CZ/CZX/CZ2X	56-58
LN2BV - Chemistry, Lipid, Enzyme all Beckman (except AU), Vitros CVL	122		
LN3 - Therapeutic Drug Monitoring CVL	123	CZ/CZX/CZ2X/Z	56-58
LN5 - Ligand CVL	123	K/KK	84
LN5S - Ligand all Siemens ADVIA (Centaur, CP, and XP) and Atellica IM CVL	123		
LN6 - Urine Chemistry CVL	124	U	70
LN7 - Immunology CVL	124	IG/IGX	214
LN8 - Reproductive Endocrinology CVL	125	Y/YY	86
LN9 - Hematology CVL	125	FH series, HE series	138
LN11 - Serum Ethanol CVL	125	AL2	104
LN12 - C-Reactive Protein CVL	126	CRP	214
LN13, LN13C - Blood Gas/Critical Care CVL	126	AQ, AQ2, AQ3, AQ4	94
LN15 - Hemoglobin A_{1c} Accuracy CVL	126	GH2, GH5	65
LN16 - Homocysteine CVL	127	HMS	66
LN17 - Whole Blood Glucose CVL	127		
LN18, LN19 - Reticulocyte CVL	127	RT, RT2, RT3, RT4	143
LN20 - Urine Albumin CVL	128	U	70
LN21 - High-Sensitivity C-Reactive Protein CVL	128	HSCRP	66
LN22 - Flow Cytometry CVL	128	FL	222
LN23 - Prostate-Specific Antigen CVL	128	K/KK	84
LN24 - Creatinine Accuracy CVL	129	C1, C3/C3X, C4, CZ/CZX/CZ2X	56-58
LN25, LN27 - Troponin I and T CVL	129	CRT, CRTI	62
LN30 - B-Type Natriuretic Peptides CVL	129	BNP	61
LN31 - Immunosuppressive Drugs CVL	130	CS	59
LN32 - Ammonia CVL	130	C1, C3/C3X, CZ/CZX/CZ2X	56-58
LN33 - Serum Myoglobin CVL	130	CRT, CRTI	62
LN34 - Tumor Markers CVL	131	TM/TMX	91
LN35 - Thrombophilia CVL	131	CGS2	164
LN36 - Heparin CVL	131	CGS4	164
LN37 - von Willebrand Factor Antigen CVL	131	CGS3	164
LN38 - CMV Viral Load CVL	132	VLS, VLS2	204
LN39 - HIV Viral Load CVL	132	HIVG, HV2	203
LN40 - Vitamin D CVL	132	VITD	86
LN41 - Procalcitonin CVL	132	PCT	79
LN42 - D-Dimer CVL	133	CGL, CGDF	162
LN44 - Fibrinogen CVL	133	CGL	162
LN45 - HCV Viral Load CVL	132	HCV2	203
LN46 - C-Peptide/Insulin CVL	133	ING	88
LN47 - High-Sensitivity Troponin T CVL	133	HCRT, HCRTI	62

All CVL programs provide individual evaluation reports by analytes, an executive summary, and graphical plots for linearity and calibration verification.

Chemistry, Lipid, Enzyme Calibration Verification/Linearity LN2, LN2BV

Analyte	Program Code	LN2	LN2BV		Units
	LN2, LN2BV	(All Instruments)	All Beckman (except AU)	Vitros	
Albumin	▮	1.5–9.0			g/dL
Calcium	▮	4.0–18.0			mg/dL
Chloride	▮	60–180			mmol/L
CO_2	▮	7–42			mmol/L
Creatinine	▮	0.8–34.0			mg/dL
Glucose	▮	20–750			mg/dL
Iron	▮	10–950			µg/dL
Magnesium	▮	0.5–9.0			mg/dL
Osmolality	▮	200–600			mOsm/kg H_2O
Phosphorus	▮	0.5–22.0			mg/dL
Potassium	▮	1.5–13.0			mmol/L
Protein	▮	1.5–12.0			g/dL
Sodium	▮	65–195			mmol/L
Urea nitrogen/Urea	▮	5–170			mg/dL
Uric acid	▮	1–25			mg/dL
Alkaline phosphatase	▮	25–1,800	25–1,000	25–1,100	U/L
ALT (SGPT)	▮	10–900	10–650	30–700	U/L
Amylase	▮	30–1,800	30–900	30–800	U/L
AST (SGOT)	▮	10–900	10–500	10–700	U/L
Creatine kinase	▮	25–2,000	25–1,200	25–700	U/L
CK-2 (MB) mass	▮	1–250	1–300	1–200	ng/mL
Gamma glutamyl transferase	▮	10–1,400	10–900	10–1,100	U/L
Lactate dehydrogenase	▮	50–1,800	50–700	185–3,000	U/L
Lipase	▮	20–1,400	20–190	150–2,500	U/L
Bilirubin, direct	▮	0.1–10.0			mg/dL
Bilirubin, total	▮	0.2–25.0			mg/dL
Cholesterol	▮	35–625			mg/dL
HDL	▮	7–120			mg/dL
Triglycerides	▮	20–700			mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 5.0-mL liquid serum specimens for basic chemistry, six 3.0-mL liquid serum specimens for direct and total bilirubin, seven 2.0-mL liquid serum specimens for lipids, and seven 5.0-mL liquid serum specimens for enzymes
- LN2 – Appropriate for most major instruments
- LN2BV – Appropriate for Beckman (except AU) and Vitros instruments only
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Therapeutic Drug Monitoring Calibration Verification/Linearity LN3

Analyte	Program Code	
	LN3	LN3 Target Ranges
Acetaminophen	▮	20–350 µg/mL
Amikacin	▮	2–45 µg/mL
Carbamazepine	▮	2–25 µg/mL
Digoxin	▮	0.5–4.4 ng/mL
Gentamicin	▮	1–11 µg/mL
Lidocaine	▮	1–10 µg/mL
Lithium	▮	0.3–4.0 mmol/L
Phenobarbital	▮	8–80 µg/mL
Phenytoin	▮	5–35 µg/mL
Salicylate	▮	7–90 mg/dL
Theophylline	▮	5–35 µg/mL
Tobramycin	▮	1–10 µg/mL
Valproic acid	▮	15–140 µg/mL
Vancomycin	▮	7–85 µg/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 4.0-mL liquid serum specimens
- A seventh 4.0-mL liquid serum specimen for acetaminophen, carbamazepine, and vancomycin
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Ligand Calibration Verification/Linearity LN5, LN5S

Analyte	Program Code	Target Ranges	
	LN5, LN5S*	LN5 Target Ranges	LN5S Target Ranges
AFP	▮	1.0–900.0 ng/mL	
CEA	▮	0.5–750.0 ng/mL	0.6–90.0 ng/mL
Cortisol	▮	1–65 µg/dL	
Ferritin	▮	2–1,100 ng/mL	
Folate	▮	1.3–20 ng/mL	
Human chorionic gonadotropin (hCG)	▮	5–14,000 mIU/mL	
Triidothyronine (T3), total	▮	0.5–7.0 ng/mL	
Thyroxine (T4), total	▮	1–80 µg/dL	
Thyroid-stimulating hormone (TSH)	▮	0.01–100.00 µIU/mL	
Vitamin B_{12}	▮	100–2,200 pg/mL	

*The LN5S CVL will allow Siemens ADVIA (Centaur, XP, and CP) and Atellica IM users to report other major instruments for analytes other than CEA, if needed.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN5 - Eight 4.0-mL liquid serum specimens; appropriate for most major instruments except Siemens ADVIA (Centaur, XP, and CP) and Atellica IM users
- LN5S - Thirteen 4.0-mL liquid serum specimens; appropriate for Siemens ADVIA (Centaur, XP, and CP) and Atellica IM users
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Urine Chemistry Calibration Verification/Linearity LN6

Analyte	Program Code	
	LN6	LN6 Target Ranges
Amylase	▮	40–2,500 U/L
Calcium	▮	5–30 mg/dL
Chloride	▮	20–300 mmol/L
Creatinine	▮	20–540 mg/dL
Glucose	▮	25–640 mg/dL
Osmolality	▮	30–1,800 mOsm/kg H_20
Phosphorus	▮	15–225 mg/dL
Potassium	▮	7–225 mmol/L
Protein, total	▮	10–210 mg/dL
Sodium	▮	20–310 mmol/L
Urea nitrogen/Urea	▮	20–2,000 mg/dL
Uric acid	▮	6–200 mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Twenty 4.0-mL liquid simulated urine specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Immunology Calibration Verification/Linearity LN7

Analyte	Program Code	
	LN7	LN7 Target Ranges
Alpha-1 antitrypsin	▮	35–500 mg/dL
Complement C3	▮	21–420 mg/dL
Complement C4	▮	5–125 mg/dL
IgA	▮	32–650 mg/dL
IgG	▮	160–3,800 mg/dL
IgM	▮	25–550 mg/dL
Transferrin	▮	50–750 mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 2.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Reproductive Endocrinology Calibration Verification/Linearity LN8

Analyte	Program Code	
	LN8	LN8 Target Ranges
Estradiol	▮	25–4,500 pg/mL
Follicle-stimulating hormone (FSH)	▮	3–190 mIU/mL
Human chorionic gonadotropin (hCG)	▮	5–8,000 mIU/mL
Luteinizing hormone (LH)	▮	2–190 mIU/mL
Progesterone	▮	1–50 ng/mL
Prolactin	▮	3–315 ng/mL
Testosterone	▮	20–1,500 ng/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 4.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Hematology Calibration Verification/Linearity LN9

Analyte	Program Code	
	LN9	LN9 Target Ranges
Hemoglobin	▮	1.0–22.5 g/dL
Platelet count	▮	10–4,200 x 10^9/L
RBC count	▮	0.3–7.5 x 10^{12}/L
WBC count	▮	0.5–350.0 x 10^9/L

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Twenty 3.0-mL liquid specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Serum Ethanol Calibration Verification/Linearity LN11

Analyte	Program Code	
	LN11	LN11 Target Range
Serum ethanol	▮	15–550 mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 3.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

C-Reactive Protein Calibration Verification/Linearity LN12

Analyte	Program Code	
	LN12	LN12 Target Range
C-reactive protein	▮	7–316 mg/L

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Not appropriate for reporting high-sensitivity C-reactive protein (hsCRP). For reporting hsCRP, use LN21 on page 128.

Program Information

- Seven 1.0-mL liquid serum specimens
- Two shipments per year

Blood Gas/Critical Care Calibration Verification/Linearity LN13, LN13C

Analyte	Program Code		Program Code	
	LN13	LN13 Target Ranges	LN13C	LN13C Target Ranges
pCO_2	▮	12–91 mm Hg	▮	12–91 mm Hg
pH	▮	6.83–7.82	▮	6.83–7.82
pO_2	▮	18–490 mm Hg	▮	18–490 mm Hg
Calcium, ionized			▮	0.15–3.30 mmol/L
Chloride			▮	62–148 mmol/L
Glucose			▮	10–465 mg/dL
Lactate			▮	0.2–18.0 mmol/L
Potassium			▮	0.5–10.7 mmol/L
Sodium			▮	83–172 mmol/L

Program Information

- LN13, LN13C - Ten 2.5-mL ampules of aqueous specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Hemoglobin A_{1c} Accuracy Calibration Verification/Linearity LN15

Analyte	Program Code	
	LN15	LN15 Target Range
Hemoglobin A_{1c}	▮	5%–12%

CAP-assigned target values derived from Hemoglobin A_{1c} measurements assayed by National Glycohemoglobin Standardization Program (NGSP) secondary reference laboratories.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 0.8-mL liquid human whole blood specimens
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Homocysteine Calibration Verification/Linearity LN16

Analyte	Program Code	
	LN16	LN16 Target Range
Homocysteine	▮	5–65 µmol/L

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 1.0-mL liquid serum specimens
- Two shipments per year

Whole Blood Glucose Calibration Verification/Linearity LN17

Analyte	Program Code	
	LN17	LN17 Target Range
Whole blood glucose	▮	50–400 mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Five 2.0-mL liquid whole blood specimens
- Report up to 10 different ancillary testing sites or instruments
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Reticulocyte Calibration Verification/Linearity LN18, LN19

Instrument/Method	Program Code		Program Code	
	LN18	LN18 Target Range	LN19	LN19 Target Range
Coulter Gen-S™, LH 500, LH 700 series, and UniCel DxH			▮	0.3%–27.0%
All other instruments	▮	0.3%–24.0%		

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN18 - Five 2.5-mL liquid whole blood specimens with pierceable caps
- LN19 - Five 3.0-mL liquid whole blood cell specimens with pierceable caps
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Urine Albumin Calibration Verification/Linearity LN20

Analyte	Program Code	
	LN20	LN20 Target Ranges
Urine albumin	▮	10–350 mg/L
Urine creatinine	▮	20–500 mg/dL
Urine albumin/creatinine ratio	▮	

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

The urine albumin/creatinine ratio results will be evaluated with a calculation verification comparison.

Program Information
- Six 5.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

High-Sensitivity C-Reactive Protein Calibration Verification/Linearity LN21

Analyte	Program Code	
	LN21	LN21 Target Range
High-sensitivity C-reactive protein	▮	0.5–18.0 mg/L

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information
- Six 1.0-mL liquid serum specimens
- For high-sensitivity methods only
- Two shipments per year

Flow Cytometry Calibration Verification/Linearity LN22

Analyte	Program Code	
	LN22	LN22 Target Ranges
CD3+	▮	50%–70% positive
CD3+ T lymphocytes absolute	▮	350–4,000 cells/µL
CD3+/CD4+	▮	1%–40% positive
CD3+/CD4+ T lymphocytes absolute	▮	6–2,000 cells/µL
CD3+/CD8+	▮	25%–40% positive
CD3+/CD8+ T lymphocytes absolute	▮	250–1,600 cells/µL

Program Information
- Seven 1.0-mL liquid whole blood specimens
- Two shipments per year

Prostate-Specific Antigen Calibration Verification/Linearity LN23

Analyte	Program Code	
	LN23	LN23 Target Range
Prostate-specific antigen	▮	0.1–90.0 ng/mL

Program Information
- Twelve 1.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Creatinine Accuracy Calibration Verification/Linearity LN24

Analyte	Program Code	
	LN24	LN24 Target Range
Creatinine	▮	0.6–4.0 mg/dL
Estimated glomerular filtration rate (eGFR)	▮	

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

The College of American Pathologists (CAP) and the National Kidney Disease Education Program (NKDEP) have an initiative to harmonize clinically reported creatinine values. This initiative is analogous to what the federal health agencies and the clinical laboratory community did to improve the accuracy of cholesterol and glycohemoglobin testing.

Program Information

- Six 1.0-mL human serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Troponin Calibration Verification/Linearity LN25, LN27

Analyte	Program Code		Program Code	
	LN25	LN25 Target Range	LN27	LN27 Target Range
Troponin I	▮	0.05–60.00 ng/mL		
Troponin T			▮	0.1–27.0 ng/mL

For LN27, view your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN25 - Seven 2.0-mL liquid serum specimens
- LN27 - Six 2.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

B-Type Natriuretic Peptides Calibration Verification/Linearity LN30

Analyte	Program Code	
	LN30	LN30 Target Ranges
BNP	▮	18–5,000 pg/mL
NT-proBNP	▮	35–22,500 pg/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 1.0-mL liquid plasma specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Immunosuppressive Drugs Calibration Verification/Linearity LN31

Analyte	Program Code	
	LN31	LN31 Target Ranges
Cyclosporine	▮	60–1,200 ng/mL
Tacrolimus	▮	1.5–30.0 ng/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 2.0-mL liquid whole blood hemolysate specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Ammonia Calibration Verification/Linearity LN32

Analyte	Program Code	
	LN32	LN32 Target Range
Ammonia	▮	13–900 µmol/L

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 2.0-mL aqueous specimens
- Two shipments per year

Serum Myoglobin Calibration Verification/Linearity LN33

Analyte	Program Code	
	LN33	LN33 Target Range
Myoglobin	▮	25–900 ng/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 1.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Tumor Markers Calibration Verification/Linearity LN34

Analyte	Program Code	
	LN34	LN34 Target Ranges
CA 125	▮	1–1,000 U/mL
CA 15-3	▮	2–190 U/mL
CA 19-9	▮	10–900 U/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Seven 3.0-mL liquid serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Coagulation Calibration Verification/Linearity LN35, LN36, LN37

Analyte	Program Code			
	LN35	LN36	LN37	Target Ranges
Antithrombin activity	▮			10%–130%
Protein C activity	▮			10%–100%
Heparin, low molecular weight		▮		0.1–2.0 U/mL
Heparin, unfractionated		▮		0.1–1.3 U/mL
von Willebrand factor antigen			▮	5%–140%

The LN35, LN36, and LN37 CVL programs meet the CAP Accreditation requirements HEM.38009, 38010, and 38011.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN35, LN37 - Six 1.0-mL frozen plasma specimens per mailing
- LN36 - Twelve 1.0-mL frozen plasma specimens per mailing, which include six for low molecular weight heparin and six for unfractionated heparin
- Two shipments per year; ships on dry ice

The CAP is your trusted calibration verification and linearity partner, offering a comprehensive menu of programs for diagnostic confidence.

- **Expedited results**—View your linearity evaluation for most CVL programs within two business days of data submission.
- **Customized report package**—Let our team of biostatisticians perform the statistical analysis of your results so you do not have to.
- **Objective Assessment**—Maximize confidence in instrument calibration by using peer group data for a view beyond your laboratory.

See the Instrumentation Verification Tools section of this catalog to determine programs that best fit your laboratory's CVL needs.

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Viral Load Calibration Verification/Linearity LN38, LN39, LN45

Analyte	Program Code			
	LN38*	LN39	LN45	Target Ranges
CMV viral load	▮			316.0–1.0M IU/mL
HIV viral load		▮		50.0–5.0M IU/mL
HCV viral load			▮	50–280M IU/mL

*The biohazard warning applies to program LN38.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN38 - Six 1.5-mL frozen plasma specimens
- Two shipments per year; ships on dry ice

- LN39 - Six 2.5-mL plasma specimens
- LN45 - Seven 2.5-mL frozen DNA specimens
- Two shipments per year; ships on dry ice (dry ice does not apply to LN39)

Vitamin D Calibration Verification/Linearity LN40

Analyte	Program Code	
	LN40	LN40 Target Range
25-OH vitamin D, total	▮	10–135 ng/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 1.0-mL serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Procalcitonin Calibration Verification/Linearity LN41

Analyte	Program Code	
	LN41	LN41 Target Range
Procalcitonin	▮	0.3–175.0 ng/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 1.0-mL frozen serum specimens
- Two shipments per year; ships on dry ice

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

D-Dimer Calibration Verification/Linearity LN42

Analyte	Program Code	
	LN42	LN42 Target Range
D-dimer	▮	220–5,500 ng/mL FEU

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information
- Six 1.0-mL plasma specimens
- Two shipments per year

Fibrinogen Calibration Verification/Linearity LN44

Analyte	Program Code	
	LN44	LN44 Target Range
Fibrinogen	▮	80–900 mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information
- Six 1.0-mL frozen plasma specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year; ships on dry ice

C-Peptide/Insulin Calibration Verification/Linearity LN46

Analyte	Program Code	
	LN46	LN46 Target Ranges
C-Peptide	▮	0.1–35.0 ng/mL
Insulin	▮	0.8–800.0 µIU/mL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information
- Seven 2.0-mL frozen serum specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

NEW

High-Sensitivity Troponin T Calibration Verification/Linearity LN47

Analyte	Program Code	
	LN47	LN47 Target Range
High-sensitivity troponin T	▮	10–9,000 ng/L

Program Information
- Six 2.0-mL serum specimens
- Two shipments per year

Please note that the ranges listed are an estimate of the values recovered. Some instruments may recover lower or higher values than the ranges listed.

Instrumentation Quality Management Programs

Instrumentation I			
Challenges	**Program Code**		
	I		
	A Shipment	**B Shipment**	**C Shipment**
Adjustable micropipette calibration verification/linearity	▮		▮
Analytical balance check	▮		▮
Gravimetric pipette calibration	▮		▮
Microtiter plate linearity	▮		▮
Refractometer calibration	▮		▮
Spectrophotometer (stray light check)	▮		▮
Absorbance check – UV wavelength		▮	
Fluorescent intensity check – fluorescent microscopes		▮	
Ocular micrometer calibration		▮	
Osmometer study		▮	
Peak absorbance measurement		▮	
pH meter check		▮	
Photometric calibration – visible wavelength		▮	

WARNING: The Instrumentation (I) program specimens may contain corrosive or toxic substances, environmental hazards, or irritants.

Program Information

- Designed to assess instruments not routinely challenged during the proficiency testing process
- Includes appropriate materials to assess important functional parameters, including accuracy and linearity
- Three shipments per year

Interfering Substance IFS

Analyte	Program Code		
	IFS		
	Bilirubin Interferent	Hemoglobin Interferent	Lipid Interferent
Alanine aminotransferase (ALT/SGPT)	▮	▮	▮
Albumin	▮	▮	▮
Alkaline phosphatase	▮	▮	▮
Amylase	▮	▮	▮
Aspartate aminotransferase (AST/SGOT)	▮	▮	▮
Calcium	▮	▮	▮
Chloride	▮	▮	▮
CK-2 (MB) mass	▮	▮	▮
Creatine kinase (CK)	▮	▮	▮
Creatinine	▮	▮	▮
Gamma glutamyl transferase (GGT)	▮	▮	▮
Glucose	▮	▮	▮
Iron	▮	▮	▮
Lactate dehydrogenase (LD)	▮	▮	▮
Lipase	▮	▮	▮
Magnesium	▮	▮	▮
Osmolality	▮	▮	▮
Phosphorus	▮	▮	▮
Potassium	▮	▮	▮
Protein, total	▮	▮	▮
Sodium	▮	▮	▮
Urea nitrogen (BUN)	▮	▮	▮
Uric acid	▮	▮	▮

The material expires December 1, 2022.

Program Information

- Eighteen 10.0-mL liquid serum specimens
- Designed for verifiying manufacturing interference specifications and investigating discrepant results caused by interfering substances
- Submit results any time prior to the material's expiration date
- One shipment per year

Serum Carryover SCO

Analyte	Program Code
	SCO
Creatinine	▮
hCG	▮
Lactate dehydrogenase (LD)	▮
Phenytoin	▮

Program Information

- One 10.0-mL liquid serum specimen (low level) and one 5.0-mL liquid serum specimen (high level)
- Designed to screen for instrument sample probe carryover
- One shipment per year

Urine Toxicology Carryover UTCO

Analyte	Program Code
	UTCO
Benzoylecgonine	▮
Delta-9-THC-COOH	▮
Opiates	▮
Amphetamine	▮

Program Information

- Two 40.0-mL urine specimens (low and high levels)
- Designed to screen for instrument sample probe carryover
- One shipment per year

12 Hematology and Clinical Microscopy

Performance Analytics Dashboard provides valuable insights into your laboratory's performance.

The complimentary dashboard helps you manage your CAP PT and accreditation performance.

- Access all graded proficiency testing result forms, evaluations, and participant summary reports from one centralized location.
- Benchmark your laboratory against your peers and CAP-wide performance.
- Consolidate multiple CAP numbers to view a single dashboard for an entire system.

Hematology and Clinical Microscopy

New Programs NEW

Program Changes

Placental Alpha Microglobulin 1 (PAMG-1) (ROM1) is now called

Discontinued Programs

Hematology Automated Differential Series (FH6, FH6P only)
Quality Cross Check—Hematology (FH6Q only)

Hematology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Hematology—Basic HE, HEP

Analyte/Procedure	Program Code		Challenges per Shipment
	HE	HEP	
Blood cell identification		▮	10
Hematocrit	▮	▮	5
Hemoglobin	▮	▮	5
MCV, MCH, and MCHC	▮	▮	5
MPV	▮	▮	5
Platelet count	▮	▮	5
RDW	▮	▮	5
Red blood cell count	▮	▮	5
White blood cell count	▮	▮	5

Program Information

- HE, HEP - Five 3.0-mL whole blood specimens
- HEP - Ten images, each available as photographs and online images
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

CE credit

Hematology Automated Differential Series FH1–FH16, FH1P–FH16P

Analyte/Procedure	Program Code				Challenges per Shipment
	FH1-FH10, FH16	FH1P-FH10P, FH16P	FH13	FH13P	
Blood cell identification		▮		▮	10
Hematocrit	▮	▮	▮	▮	5
Hemoglobin	▮	▮	▮	▮	5
Immature granulocyte (IG)	▮	▮			5 (FH9 only)
Immature platelet fraction (IPF)/reticulated platelet (RP)	▮	▮			5 (FH9 only)
Large unstained cell (LUC)	▮	▮			5 (FH4 only)
MCV, MCH, and MCHC	▮	▮	▮	▮	5
MPV	▮	▮	▮	▮	5
Nucleated red blood cell count (nRBC)	▮	▮	▮	▮	5 (FH3, FH9, FH13, and FH16)
Platelet count	▮	▮	▮	▮	5
RDW	▮	▮	▮	▮	5
Red blood cell count	▮	▮	▮	▮	5
White blood cell count	▮	▮	▮	▮	5
WBC differential	▮	▮	▮	▮	5

For multiple instrument reporting options, see the Quality Cross Check programs, FH3Q, FH4Q, FH9Q, and FH13Q, on page 139.

Program Information

- FH1-4, FH10, FH16, FH1P-4P, FH10P, FH16P - Five 2.5-mL whole blood specimens with pierceable caps
- FH9, FH13, FH9P, FH13P - Five 2.0-mL whole blood specimens with pierceable caps
- FHP series - Ten images, each available as photographs and online images
- For method compatibility, see instrument matrix on page 140
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

CE credit

Quality Cross Check—Hematology FH3Q, FH4Q, FH9Q, FH13Q

Analyte/Procedure	Program Code				Challenges per Shipment
	FH3Q	FH4Q	FH9Q	FH13Q NEW	
Hematocrit	▮	▮	▮	▮	3
Hemoglobin	▮	▮	▮	▮	3
Immature granulocyte parameter			▮		3
Immature platelet function (IPF)%			▮		3
Large unstained cells (LUC)		▮			3
MCV, MCH, MCHC	▮	▮	▮	▮	3
MPV	▮	▮	▮	▮	3
Nucleated red blood cell count (nRBC)	▮		▮	▮	3
Platelet count	▮	▮	▮	▮	3
RDW	▮	▮	▮	▮	3
Red blood cell count	▮	▮	▮	▮	3
WBC differential	▮	▮	▮	▮	3
White blood cell count	▮	▮	▮	▮	3

These programs do not meet regulatory requirements for proficiency testing; see the FH Series on page 138. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- FH3Q, FH4Q, FH9Q, FH13Q - Three 2.5-mL whole blood specimens with pierceable caps
- Report up to three instruments
- For method compatibility, see instrument matrix on page 140
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Hematology Automated Differential Series, Instrument Matrix

Instrument	FH and FHQ Series							
	FH1	FH2	FH3/ FH3Q	FH4/ FH4Q	FH9/ FH9Q	FH10	FH13/ FH13Q	FH16/ FH3Q
Abbott Cell-Dyn® 1200, 1400, 1600, 1700, Emerald™	▮							
Horiba ABX 9000+, 9018+, 9020+	▮							
Sysmex K-series, KCP-1, KX-21/21N, pocH-100i, XP-series	▮							
CDS/Medonic M-series		▮						
Coulter® Ac·T, diff/diff 2™ MD 2/8/10/16, ONYX™, S880, S-plus V, ST, STKR, T-series		▮						
Drew Scientific DC-18, I-1800, DREW3, EXCELL 10/16/18		▮						
Horiba ABX Micros		▮						
Mindray BC-2800, 3000/3200 series, BC-6000/BC-6200/BC-6800/BC-6800Plus		▮						
Siemens ADVIA® 360		▮						
Abbott Cell-Dyn 3000, 3500, 3700, 4000, Ruby™, Sapphire™			▮					
Biosystems SA HA3/HA5			▮					
Abbott Cell-Dyn Emerald 22/AL			▮					
Drew Scientific EXCELL 22, 2280			▮					
Orphee Mythic 18, 22 AL, 22 OT, 60			▮					
Siemens ADVIA 560			▮					
Siemens ADVIA 120, 120 w/SP1, 2120				▮				
Abbott Alinity hq, Sysmex XE-2100, XE-2100C, XE-2100D, XE-2100DC, XE-2100L, XE-5000, XE-AlphaN, XE-HST, XN-series (includes RL App), XN-L series, XS-500i, XS-800i, XS-1000i, XS-1000i-AL, XS-1000iC, XT-1800i, XT-2000i, XT-4000i, XE-2100D/L (Blood Center)					▮			
Coulter Ac·T 5diff (AL, CP, OV)						▮		
DIRUI BF series						▮		
Horiba ABX Pentra 60, 80, 120, Horiba Pentra DF Nexus						▮		
Coulter LH-750, LH-755, LH-780, LH-785, UniCel DxH series (except DxH 500 series)							▮	
Coulter DxH 500 series								▮

Blood Cell Identification, Photographs BCP, BCP2

Procedure	Program Code		Challenges per Shipment
	BCP	BCP2	
Blood cell identification	▮	▮	5
Educational challenge(s)	▮	▮	5 (BCP)/1 (BCP2)

Program Information

- BCP - Ten images, each available as photographs and online images
- BCP2 - Six images, each available as photographs and online images
- Three shipments per year

CE credit

Blood Parasite BP

Procedure	Program Code	Challenges per Shipment
	BP	
Blood parasite identification (thin/thick film sets*)	▮	5

*This program will include corresponding thick films when available.

Program Information

- Five Giemsa-stained blood film sets, photographs, and/or online images
- Percent parasitemia reporting is provided when appropriate for educational purposes
- A variety of blood parasites, including *Plasmodium, Babesia, Trypanosoma,* and filarial worms
- Three shipments per year

Bone Marrow Cell Differential BMD

Procedure	Program Code	Challenges per Shipment
	BMD	
Bone marrow differential	▮	1
Bone marrow cell identification	▮	5

Additional Information

- Examine an online, whole slide image that includes a manual 500 count bone marrow differential and annotated cells for identification.
- Recognize and integrate problem-solving skills through the use of interpretive questions found throughout the discussion.
- Evaluate cell morphology and identify specific cells in bone marrow.
- See system requirements on page 13.

Program Information

- One online bone marrow aspirate whole slide image that includes five annotated cells for identification
- Powered by DigitalScope® technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

CE credit

Erythrocyte Sedimentation Rate ESR, ESR1, ESR2, ESR3

Procedure	Program Code				Challenges per Shipment
	ESR	ESR1	ESR2	ESR3	
All methods except the ALCOR, Alifax®, Sedimat 15®, and Sedimat 15 Plus	▮				3
Sedimat 15, Sedimat 15 Plus		▮			3
Alifax			▮		3
ALCOR iSED				▮	3

Program Information

- ESR, ESR1 - Three 6.0-mL whole blood specimens
- ESR2 - Three 3.0-mL simulated whole blood specimens
- ESR3 - Three 3.5-mL whole blood specimens
- Two shipments per year

Fetal Red Cell Detection HBF

Procedure	Program Code	Challenges per Shipment
	HBF	
Kleihauer-Betke and flow cytometry	▮	2
Rosette fetal screen	▮	2
Acid elution whole slide image	▮	1

Program Information

- Two 1.2-mL liquid whole blood specimens
- Not designed for F cell quantitation
- Two online, whole slide images per year with optional grids for cell counting
- Powered by DigitalScope technology
- Two shipments per year

Hemoglobinopathy HG

Procedure	Program Code	Challenges per Shipment
	HG	
Hemoglobin identification and quantification	▮	4
Educational "paper challenges"	▮	2
Hemoglobin A_2 quantitation	▮	4
Hemoglobin F quantitation	▮	1
Sickling test, qualitative	▮	4

Program Information

- Four 0.5-mL stabilized red blood cell specimens
- Two educational paper challenges (case histories, electrophoresis patterns, and clinical interpretation questions)
- Two shipments per year

Rapid Total White Blood Cell Count RWBC

Procedure	Program Code	Challenges per Shipment
	RWBC	
Rapid total white blood cell count	▮	5

Program Information

- Five 2.0-mL whole blood specimens
- For use with the HemoCue WBC instrument
- Three shipments per year

Reticulocyte Series RT, RT2, RT3, RT4

Instrument/Method	Program Code				Challenges per Shipment
	RT	RT2	RT3	RT4	
Abbott Alinity hq, Abbott Cell-Dyn 4000, Sapphire, Siemens ADVIA 120/2120, and all other automated and manual methods	▮				3
Abbott Cell-Dyn 3500, 3700, Ruby		▮			3
Coulter Gen-S™, HmX, LH 500, LH 700 series, MAXM, STKS, UniCel DxH series			▮		3
Sysmex XE-2100, XE-2100C, XE-2100D, XE-2100DC, XE-2100L, XE-5000, XN-L series, XN-series (includes RL App), XT-2000i, XT-4000i				▮	3
Pierceable caps			▮	▮	3

For specific program testing components, see reticulocyte matrix on next page.

Program Information

- RT, RT2 - Three 1.0-mL stabilized red blood cell specimens
- RT3 - Three 3.0-mL stabilized red blood cell specimens
- RT4 - Three 2.0-mL stabilized red blood cell specimens
- Two shipments per year

Quality Cross Check—Reticulocyte RTQ, RT3Q, RT4Q

Instrument/Method	Program Code			Challenges per Shipment
	RTQ	RT3Q	RT4Q	
Abbott Alinity hq, Abbott Cell-Dyn 4000, Sapphire, Siemens ADVIA 120/2120, and all other automated and manual methods	▮			3
Coulter Gen-S™, HmX, LH500, LH700 series, MAXM, STKS, UniCel DxH series		▮		3
Sysmex XE-2100, XE-2100C, XE-2100D, XE-2100DC,, XE-2100L, XE-5000, XN-L series, XN-series (includes RL App), XT-2000i, XT-4000i			▮	3

These programs do not meet regulatory requirements for proficiency testing; see the RT Series, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- RTQ - Three 1.0-mL stabilized red blood cell specimens
- RT3Q - Three 3.0-mL stabilized red blood cell specimens
- RT4Q - Three 2.0-mL stabilized red blood cell specimens
- Includes percentage and absolute result reporting
- Report up to three instruments
- Two shipments per year

Reticulocyte, Matrix

Program Code	Reticulocyte count, percent	Absolute reticulocyte count	Immature Reticulocyte Fraction (IRF)	Reticulocyte Hemoglobin Concentration (CHr)	Reticulocyte Hemoglobin (RET-He)
RT/RTQ	▮	▮	▮	▮	
RT2	▮	▮			
RT3/RT3Q	▮	▮	▮		
RT4/RT4Q	▮	▮	▮		▮

Sickle Cell Screening SCS

Procedure	Program Code	Challenges per Shipment
	SCS	
Sickling test, qualitative	▮	3

Program Information

- Three 1.0-mL whole blood specimens
- Two shipments per year

Transfusion-Related Cell Count TRC

Procedure	Program Code	Challenges per Shipment
	TRC	
Platelet count (platelet-rich plasma)	▮	5
WBC count	▮	4
Paper challenge	▮	2

WBC counts must be performed using a Nageotte chamber, fluorescence microscopy, or by flow cytometry.

Program Information

- Five 1.2-mL suspensions of platelet-rich plasma
- Two 1.0-mL vials leukocyte-reduced platelet material
- Two 1.0-mL vials leukocyte-reduced red blood cells
- Three shipments per year

Bone Marrow Benchtop Reference Guide (BMBRG)

With more than 60 different identifications and a detailed description for each cell morphology, this illustrated guide is an affordable, convenient way to identify various cell types quickly and confidently. Plus, its rugged construction makes it well suited for heavy use at the benchtop.

Add it to your order.

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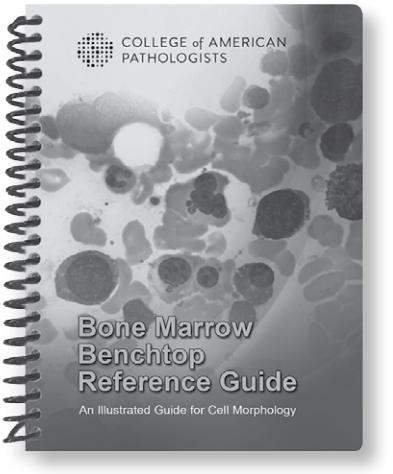
- ebooks at ebooks.cap.org



Waived Combination HCC, HCC2

Analyte	Program Code		Challenges per Shipment
	HCC	HCC2	
Hematocrit		▮	2
Hemoglobin	▮	▮	2
Urinalysis/urine hCG		▮	2
Whole blood glucose	▮	▮	2 (HCC)/3 (HCC2)

Program Information

- HCC - Two 2.5-mL whole blood specimens; two shipments per year
- Conventional and International System of Units (SI) reporting offered
- HCC2 - Total of four shipments per year

  Hematocrit, hemoglobin, and urinalysis/urine hCG testing - Two 3.0-mL whole blood specimens and two 10.0-mL urine specimens; two shipments per year: A and C

  Whole blood glucose testing - Three 2.0-mL whole blood specimens; two shipments per year: B and D
- To verify instrument compatibility, refer to the instrument matrix on page 68

Virtual Peripheral Blood Smear VPBS

Procedure	Program Code	Challenges per Shipment
	VPBS	
WBC differential	▮	3
Platelet estimate	▮	3
RBC morphology	▮	3
Blood cell identification	▮	15

Additional Information

- Examine online, whole slide images that include a manual 100 white blood cell differential count and annotated cells for identification.
- Evaluate and identify red blood cell (RBC) morphology and identify specific white blood cells (WBC) in peripheral blood.
- Recognize and integrate problem-solving skills through the use of interpretive questions found throughout the discussion.
- See system requirements on page 13.

Program Information

- Three online, peripheral blood whole slide images that include 15 annotated cells for identification
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

CE credit

Expanded Virtual Peripheral Blood Smear EHE1

Procedure	Program Code	Challenges per Shipment
	EHE1	
WBC differential	■	2
Platelet estimate	■	2
RBC morphology	■	2
WBC morphology	■	2
Blood cell identification	■	10

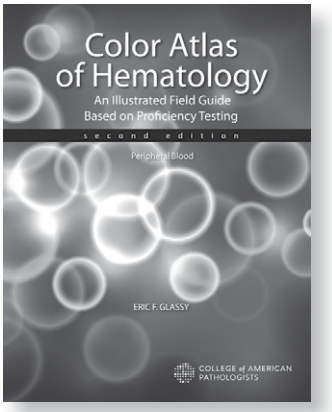
Additional Information

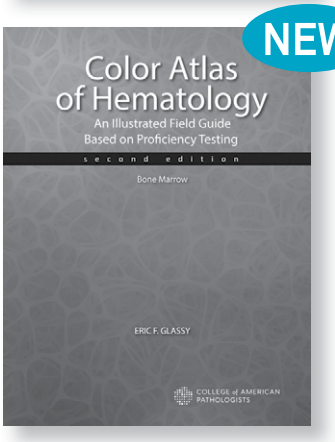
- More challenging and/or complex testing.
- Examine online, whole slide images that include a manual 100 white blood cell differential count and annotated cells for identification.
- Comprehensive case studies.
- Recognize and integrate problem-solving skills through the use of interpretive questions found throughout discussion.
- Evaluate and identifiy red blood cell (RBC) morphology and identify specific white blood cells (WBC) in peripheral blood.
- See system requirements on page 13.

Program Information

- Two online, peripheral blood whole slide images that include 10 annotated cells for identification
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Color Atlas of Hematology—Peripheral Blood (PUB222)
Color Atlas of Hematology—Bone Marrow (PUB229)





The second edition of *Color Atlas of Hematology* has now expanded to two volumes, with the addition of bone marrow pathology.

Volume 1 presents keen insights into peripheral blood pathology. Link to 18 engaging videos. View 100+ peripheral blood smears online with DigitalScope® technology.

Volume 2 is a useful and instructional reference guide to bone marrow pathology. Explore the detailed "A Closer Look At..." sections. Access the links to interactive slide images.

Vol 1. Peripheral Blood
Item number: PUB222 Hardcover; 480 pages; 2018

Vol 2. Bone Marrow
Item number: PUB229 Hardcover; 370 pages; 2021

Add them to your order.

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- printed books at estore.cap.org

Hematopathology Online Education HPATH/HPATH1

Program	Program Code	Challenges per Shipment
	HPATH/HPATH1	
Hematopathology online case review	▮	5

Additional Information

HPATH educates pathologists, hematopathologists, and hematologists with an interest in hematopathology to assess and improve their diagnostic skills in hematopathology.

- Clinical history and relevant laboratory data.
- At least one online, whole slide image of peripheral blood, bone marrow, spleen, lymph node, or other tissue.
- Results of ancillary studies such as immunohistochemistry, flow cytometry, FISH, karyotyping, and molecular studies, where appropriate.
- Case discussion and discussion of differential diagnoses.
- Each case includes assessment questions.
- See system requirements on page 13.

Program Information

- HPATH - Five diagnostic challenges/online, whole slide images with clinical history; reporting with CME credit is available for one pathologist/ hematologist; for additional pathologist/hematologist, order HPATH1
- HPATH1 - Reporting option with CME credit for each additional pathologist/ hematologist (within the same institution); must order in conjunction with program HPATH
- Earn a maximum of 12.5 CME credits (*AMA PRA Category 1 Credits™*) per pathologist and a maximum of 12.5 CE credits per hematologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Clinical Microscopy

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Urinalysis and Clinical Microscopy CMP, CMP1

Analyte/Procedure	Program Code		Challenges per Shipment
	CMP	CMP1	
Bilirubin	▮	▮	3
Blood or hemoglobin	▮	▮	3
Body fluid photographs	▮	▮	3
Glucose	▮	▮	3
hCG urine, qualitative	▮	▮	3
Ketones	▮	▮	3
Leukocyte esterase	▮	▮	3
Nitrite	▮	▮	3
Osmolality	▮	▮	3
pH	▮	▮	3
Protein, qualitative	▮	▮	3
Reducing substances	▮	▮	3
Specific gravity	▮	▮	3
Urine sediment photographs	▮	▮	3
Urobilinogen	▮	▮	3

For multiple instrument reporting options, see the Quality Cross Check program, CMQ, on page 149.

Program Information

- CMP - Three 10.0-mL liquid urine specimens; for use with all instruments except IRIS iCHEM; six images, each available as photographs and online images
- CMP1 - Three 10.0-mL liquid urine specimens; for use with IRIS iCHEM instruments only urinalysis; six images, each available as photographs and online images
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Quality Cross Check—Urinalysis CMQ

Analyte	Program Code	Challenges per Shipment
	CMQ	
Bilirubin	▮	3
Blood or hemoglobin	▮	3
Glucose	▮	3
hCG urine, qualitative	▮	3
Ketones	▮	3
Leukocyte esterase	▮	3
Nitrite	▮	3
Osmolality	▮	3
pH	▮	3
Protein, qualitative	▮	3
Reducing substances	▮	3
Specific gravity	▮	3
Urobilinogen	▮	3

This program does not meet regulatory requirements for proficiency testing; see programs CMP and CMP1 on page 148. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments, and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 10.0-mL liquid urine specimens for use with all instruments
- Report up to three instruments
- Two shipments per year

Clinical Microscopy Miscellaneous Photopage CMMP

Procedure	Program Code	Challenges per Shipment
	CMMP	
Fern test (vaginal)	▮	1
KOH preparation (skin)	▮	1
Nasal smear	▮	1
Pinworm preparation	▮	1
Spermatozoa	▮	1
Stool for leukocytes	▮	1
Urine sediment photographs	▮	3
Vaginal wet preparation photographs (for clue cells, epithelial cells, trichomonas, or yeast)	▮	1

Program Information

- Ten images, each available as photographs and online images
- Two shipments per year

Amniotic Fluid Leakage AFL

Procedure	Program Code	Challenges per Shipment
	AFL	
pH interpretation	▮	3

Program Information
- Three 2.0-mL liquid specimens
- For use with nitrazine paper and the Amniotest™
- Two shipments per year

Automated Body Fluid Series ABF1, ABF2, ABF3

Procedure	Program Code			Challenges per Shipment
	ABF1	ABF2	ABF3	
Red blood cell fluid count	▮	▮	▮	2
Total nucleated cell/WBC fluid count	▮	▮	▮	2

For method compatibility, see instrument matrix below.

Program Information
- Two 3.0-mL simulated body fluid specimens
- Two shipments per year

Automated Body Fluid, Instrument Matrix

Instrument	ABF Series		
	ABF1	ABF2	ABF3
Advanced Instruments GloCyte, Siemens ADVIA 120/2120 series	▮		
Coulter LH 700 series, Unicel DxH series		▮	
Sysmex XE-2100, XE-2100C, XE-2100D, XE-2100DC, XE-2100L, XE-5000, XN-series, XN-L series, XT-1800i, XT-2000i, XT-4000i		▮	
IRIS iQ® 200			▮

Virtual Body Fluid VBF

Procedure	Program Code	Challenges per Shipment
	VBF	
Total nucleated cells differential	▮	2
Body fluid cell identification	▮	10

Additional Information
- Examine online, whole slide images that include a manual differential count and annotated cells for identification.
- Evaluate cell morphology and identify specific cells in a body fluid.
- See system requirements on page 13.

Program Information
- Two online, whole slide body fluid images that include 10 annotated cells for identification
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Automated Urine Microscopy UAA, UAA1

Analyte	Program Code		Challenges per Shipment
	UAA	UAA1	
Casts, semiquantitative	▮	▮	2
Crystals, semiquantitative	▮		2
Epithelial cells, semiquantitative		▮	2
Red blood cells, quantitative	▮	▮	2
White blood cells, quantitative	▮	▮	2

For method compatibility, see instrument matrix below.

Program Information

- UAA - Two 10.0-mL liquid urine specimens for use with IRIS and Roche instruments
- UAA1 - Two 12.0-mL liquid urine specimens for use with Sysmex instruments
- Two shipments per year

Automated Urine Microscopy, Instrument Matrix

Instrument	UAA, UAA1	
	UAA	UAA1
DIRUI FUS	X	
IRIS iQ200	X	
Roche cobas u701	X	
ARKRAY Auction Hybrid		X
77 Elektronika		X
Siemens Atellica UAS 800		X
Sysmex UF 50, 100, 500i, 1000i, 3000/4000/5000, Sysmex UX 2000		X

Crystals BCR, BFC, URC

Procedure	Program Code			Challenges per Shipment
	BCR	BFC	URC	
Bile crystal identification	▮			2
Body fluid crystal identification		▮		2
Urine crystal identification			▮	2

Program Information

- BFC - Two 1.5-mL simulated body fluid specimens (eg, synovial fluid)
- URC - Two 1.5-mL urine specimens
- BCR - Two photographs
- Two shipments per year

Dipstick Confirmatory DSC

Analyte	Program Code	Challenges per Shipment
	DSC	
Bilirubin	▮	2
Sulfosalicylic acid (SSA)	▮	2

Program Information

- Two 12.0-mL liquid urine specimens
- For use with methods to confirm positive bilirubin and protein dipstick results
- Two shipments per year

Fecal Fat FCFS

Analyte	Program Code	Challenges per Shipment
	FCFS	
Fecal fat, qualitative	▮	2

Program Information
- Two 10.0-g simulated fecal fat specimens
- For microscopic detection of neutral fats (triglycerides) and/or split fats (total free fatty acids)
- Two shipments per year

Fetal Hemoglobin APT

Analyte	Program Code	Challenges per Shipment
	APT	
Fetal hemoglobin (gastric fluid)	▮	2

Program Information
- Two 1.2-mL simulated gastric fluid specimens
- Two shipments per year

Gastric Occult Blood GOCB

Analyte	Program Code	Challenges per Shipment
	GOCB	
Gastric occult blood	▮	3
Gastric pH	▮	3

Program Information
- Three 2.0-mL simulated gastric fluid specimens
- Two shipments per year

Glucose-6-Phosphate Dehydrogenase G6PDS

Analyte	Program Code	Challenges per Shipment
	G6PDS	
G6PD, qualitative and quantitative	▮	2

Program Information
- Two 0.5-mL lyophilized hemolysate specimens
- Two shipments per year

Hemocytometer Fluid Count HFC

Procedure	Program Code	Challenges per Shipment
	HFC	
Cytopreparation differential	▮	3
Red blood cell fluid count	▮	3
Total nucleated cell/WBC fluid count	▮	3

This program has limited stability. Laboratories outside the US or Canada should consider purchase of HFCI, which has longer stability.

Program Information
- Three 1.0-mL simulated body fluid specimens
- Two shipments per year

Hemocytometer Fluid Count, International HFCI

Procedure	Program Code	Challenges per Shipment
	HFCI	
Red blood cell fluid count	▮	3
Total nucleated cell/WBC fluid count	▮	3
Body fluid differential	▮	2

Additional Information

- This program meets the CAP's Accreditation Program requirements.
- Examine online, whole slide images that include a manual differential count.
- See system requirements on page 13.

Program Information

- Three 2.0-mL simulated body fluid specimens; two online, whole slide images for 2- and 5-part differential
- Powered by DigitalScope technology
- Designed for international laboratories that have experienced significant shipping and receiving issues and need longer program stability
- Two shipments per year

Lamellar Body Count LBC

Procedure	Program Code	Challenges per Shipment
	LBC	
Lamellar body count	▮	3

Program Information

- Three 2.0-mL simulated amniotic fluid specimens
- For use with LBC methods performed on all hematology analyzers
- Two shipments per year

Occult Blood OCB

Analyte	Program Code	Challenges per Shipment
	OCB	
Occult blood	▮	3

For multiple instrument reporting options, see the Quality Cross Check program, OCBQ, on page 154.

Program Information

- Three 2.0-mL simulated fecal specimens
- Two shipments per year

Quality Cross Check—Occult Blood OCBQ

Analyte	Program Code	Challenges per Shipment
	OCBQ	
Occult blood	▮	3

This program does not meet regulatory requirements for proficiency testing; see program OCB on page 153. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 2.0-mL simulated fecal specimens
- Report up to three instruments
- Two shipments per year

Fetal Membranes/Preterm Labor ROM1

Procedure	Program Code	Challenges per Shipment
	ROM1	
Fetal membranes/preterm labor	▮	3

Program Information

- Three 0.5-mL simulated vaginal specimens for methods such as Actim PROM, Amnisure, Clinical Innovations, and PartoSure
- Two shipments per year

Special Clinical Microscopy SCM1, SCM2

Analyte/Procedure	Program Code		Challenges per Shipment
	SCM1	SCM2	
Urine hemosiderin, Prussian blue	▮		3
Urine eosinophils, Wright stain		▮	3

Program Information

- SCM1, SCM2 - Three images, each available as photographs and online images
- Two shipments per year

Ticks, Mites, and Other Arthropods TMO

Procedure	Program Code	Challenges per Shipment
	TMO	
Tick, mite, and arthropod identification	▮	3

Program Information

- Three images, each available as photographs and online images
- Two shipments per year

Urine hCG UHCG

Procedure	Program Code	Challenges per Shipment
	UHCG	
Urine hCG, qualitative	▮	5

Program Information

- Five 1.0-mL urine specimens
- Three shipments per year

Urine Albumin and Creatinine, Semiquant UMC

Analyte/Procedure	Program Code	Challenges per Shipment
	UMC	
Creatinine	▮	2
Urine albumin (microalbumin): creatinine ratio	▮	2
Urine albumin (microalbumin), semiquantitative	▮	2

For quantitative reporting, refer to program U, page 70.

Program Information

- Two 3.0-mL liquid urine specimens
- For use with dipstick and semiquantitative methods only
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Worm Identification WID

Procedure	Program Code	Challenges per Shipment
	WID	
Worm identification	▮	3

Program Information

- Three images, each available as photographs and online images
- Two shipments per year

Urinalysis Benchtop Reference Guide (UABRG)

- Thirty-four different cell identifications, including common and rare cells
- Detailed descriptions for each cell morphology
- Eight tabbed sections for easy reference
  - Urinary Cells
  - Urinary Casts
  - Urinary Crystals
    - At Acid pH
    - At Neutral or Acid pH
    - At Neutral or Alkaline pH
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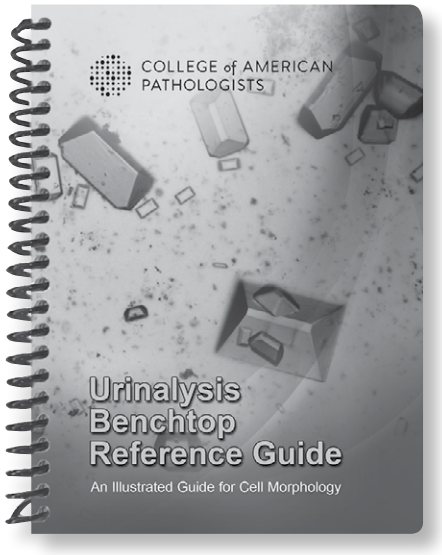

Item number: UABRG
Spiral bound; 38 pages; 34 images; 2014

Semen Analysis Benchtop Reference Guide (SABRG)

This illustrated guide to sperm morphology includes specimen collection and macroscopic assessment, sperm count, and morphology assessment and classification systems. Also included are 50 images representing normal morphology, head defects, neck/midpiece defects, tail defects, and residual cytoplasm defects, as well as images of nonsperm cells, Pap-stained sperm, and equipment. The sturdy laminated guide features tabbed sections for easy reference.

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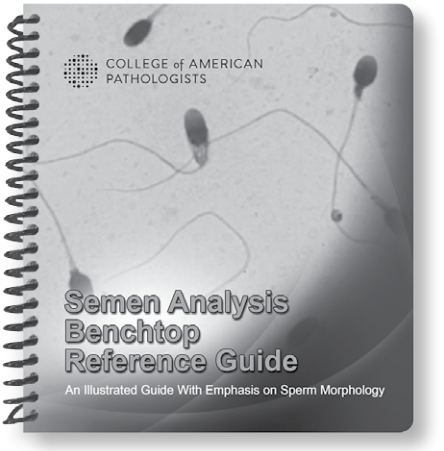

Item number: SABRG
Spiral bound; 6½" x 7"; 2018

13 Reproductive Medicine

Enhance your learning with continuing education (CE) content included with many of our proficiency testing programs.

- For many of our PT/EQA programs, each member of a participating laboratory has complimentary enrollment to online CE activities.
- Advance skills with education activities developed by more than 600 physicians and doctoral scientists with expertise in pathology and laboratory medicine.

Reproductive Medicine

Andrology and Embryology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Semen Analysis SC, SC1, PV, PV1, SM, SV, ASA

Procedure	Program Code							Challenges per Shipment
	SC	SC1	PV	PV1	SM	SV	ASA	
Sperm count and presence/absence (manual methods)	▮							2
Sperm count (automated methods)		▮						2
Postvasectomy sperm count and presence/absence			▮					2
Postvasectomy sperm count (automated methods)				▮				2
Sperm morphology					▮			2
Sperm viability						▮		2
Antisperm antibody IgG							▮	2

Program Information

- SC - Two 0.3-mL stabilized sperm specimens
- SC1 - Two 1.0-mL stabilized sperm specimens
- PV - Two 0.3-mL stabilized sperm specimens with counts appropriate for postvasectomy testing
- PV1 - Two 1.0-mL stabilized sperm specimens with counts appropriate for postvasectomy testing
- SM - Two prepared slides for staining
- SV - Two eosin-nigrosin-stained slides
- ASA - Two 0.3-mL serum specimens
- Two shipments per year

CE credit

Sperm Count, Motility, Morphology, and Viability SMCD, SM1CD, SM2CD

Procedure	Program Code			Challenges per Shipment
	SMCD	SM1CD	SM2CD	
Sperm count	▮			2
Sperm motility/forward progression	▮			2
Sperm classification		▮		10
Sperm morphology		▮		2
Sperm viability			▮	2

Program Information

- SMCD - Online video clips of sperm available for hemocytometer, Makler, and disposable chambers
- SM1CD, SM2CD - Two online challenges that may be viewed as whole slide images powered by DigitalScope® technology
- Two online activites per year; your CAP shipping contact will be notified via email when the activity is available

CE credit

Embryology EMB

Procedure	Program Code	Challenges per Shipment
	EMB	
Embryo transfer and quality assessment (three- and five-day-old embryos)	▮	4

Program Information

- Two online sets of five video clips
- Two online activites per year; your CAP shipping contact will be notified via email when the activity is available

Sex Hormones Y, YY, DY

Analyte	Program Code		Challenges per Shipment
	Y, YY	DY	
11-deoxycortisol	▮		3
17-hydroxyprogesterone	▮		3
Androstenedione	▮		3
DHEA sulfate	▮		3
Estradiol	▮		3
Estriol, unconjugated (uE3)	▮		3
Follicle-stimulating hormone (FSH)	▮		3
Growth hormone (GH)	▮		3
IGF-1 (somatomedin C)	▮		3
Luteinizing hormone (LH)	▮		3
Progesterone	▮		3
Prolactin	▮		3
Testosterone	▮		3
Testosterone, bioavailable (measured)		▮	3
Testosterone, free (measured)		▮	3
Sex hormone-binding globulin (SHBG)		▮	3

Program Information

- Y - Three 5.0-mL liquid serum specimens in duplicate
- YY - Three 5.0-mL liquid serum specimens in triplicate
- DY - Must order in conjunction with program Y or YY
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

CE credit

Antimüllerian Hormone AMH

Analyte	Program Code	Challenges per Shipment
	AMH	
Antimüllerian hormone	▮	3

Program Information

- Three 1.0-mL lyophilized serum specimens
- Two shipments per year

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14 Coagulation

Meet requirements for calibration verification and linearity for coagulation testing.

- Hemostasis test methods that are calibrated and directly measure the concentration of an analyte require calibration verification/linearity (CVL).
- Coagulation programs available include Heparin CVL (LN36), von Willebrand Factor Antigen CVL (LN37), D-Dimer CVL (LN42), Thrombophilia CVL (LN35), and Fibrinogen CVL (LN44).

New Programs NEW

New Analyte Additions NEW

Coagulation

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Coagulation—Limited CGB, CGL, CGDF

Analyte	Program Code			Challenges per Shipment
	CGB	CGL	CGDF	
Activated partial thromboplastin time	▮	▮		5
Fibrinogen		▮		5
International normalized ratio (INR)*	▮	▮		5
Prothrombin time	▮	▮		5
D-dimer		▮	▮	2
Fibrin(ogen) degradation products, plasma		▮	▮	1
Fibrin(ogen) degradation products, serum		▮	▮	1
Fibrin monomer NEW		▮	▮	2

*Participants reporting INR results will receive a special evaluation to assess the INR calculation.

For multiple instrument reporting options, see the Quality Cross Check program, CGLQ, on page 163.

Program Information

- CGB - Five 1.0-mL lyophilized plasma specimens
- CGL - Seven 1.0-mL lyophilized plasma specimens and one 2.0-mL serum specimen
- CGDF - One 2.0-mL serum specimen; two 1.0-mL lyophilized plasma specimens
- One 1.0-mL liquid plasma specimen will replace one 1.0-mL lyophilized plasma specimen for D-dimer testing in CGL and CGDF in one shipment per year
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

CE credit

Quality Cross Check—Coagulation CGLQ

Analyte	Program Code	Challenges per Shipment
	CGLQ	
Activated partial thromboplastin time	▮	3
Fibrinogen	▮	3
International normalized ratio (INR)	▮	3
Prothrombin time	▮	3
D-dimer	▮	2
Fibrin(ogen) degradation products, plasma	▮	1
Fibrin(ogen) degradation products, serum	▮	1

This program does not meet regulatory requirements for proficiency testing; see program CGL on page 162. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 1.0-mL lyophilized plasma specimens in triplicate, two 1.0-mL lyophilized plasma specimens, and one 2.0-mL serum specimen
- Report up to three instruments
- Two shipments per year

Coagulation—Extended CGE, CGEX

Analyte	Program Code	Challenges per Shipment
	CGE, CGEX	
See analyte listing below	▮	2

Program Information

- CGE - Two 1.0-mL lyophilized plasma specimens (three vials each)
- CGEX - Two 1.0-mL lyophilized plasma specimens (five vials each)
- Two shipments per year

Coagulation Analyte Listing (Quantitative Results)

50:50 mixing study, PT and aPTT
Activated partial thromboplastin time
Activated protein C resistance
Alpha-2-antiplasmin
Antithrombin activity/antigen
Dilute prothrombin time
Factors II, V, VII, VIII, IX, X, XI, XII, and XIII
Fibrinogen antigen
Heparin-induced thrombocytopenia (HIT)
Plasminogen activator inhibitor
Plasminogen activity/antigen
Prekallikrein
Protein C
Protein S
Prothrombin time
Reptilase time
Thrombin time
von Willebrand factor activity:
- Collagen binding
- Glycoprotein I_b binding
- Ristocetin cofactor

von Willebrand factor antigen

Coagulation Special Testing Series CGS1, CGS2, CGS3, CGS4, CGS5, CGS7

Module/Analyte	Challenges per Shipment					
	Program Code					
	CGS1	CGS2	CGS3	CGS4	CGS5	CGS7
Activated partial thromboplastin time*	2		2	3		
International normalized ratio (INR)	2			3		
Prothrombin time*	2			3		
Lupus Anticoagulant and Mixing Studies Module						
Dilute Russell's viper venom time	2					
Lupus anticoagulant (confirmation and screen)	2					
50:50 mixing studies, PT and aPTT	2					
Thrombophilia Module						
Activated protein C resistance		2				
Antithrombin (activity, antigen)		2				
Protein C (activity, antigen)		2				
Protein S (activity, free antigen, total antigen)		2				
von Willebrand Factor Antigen Module						
Factor VIII assay			2			
von Willebrand factor (antigen, activity, multimers)			2			
Factor VIII inhibitor			2			
Heparin Module						
Heparin activities using methodologies including Anti-Xa (unfractionated, low molecular weight, and hybrid curve)				3		
Thrombin time				3		
Heparin-Induced Thrombocytopenia Module						
Appropriate with methods such as Immucor Lifecodes PF4 IgG and Immucor Lifecodes PF4 Enhanced® assays					2	
ADAMTS13 Module						
ADAMTS13 (activity, inhibitor screen, titer, and anti ADAMTS13 IgG)						3

*Not appropriate for meeting regulatory requirements, see page 162.

Program Information

- CGS1, CGS2, CGS3 - Two 2.0-mL lyophilized plasma specimens
- CGS4 - Three 1.0-mL lyophilized plasma specimens
- CGS5 - Two 60.0-µL serum specimens
- CGS7 - Three 1.0-mL lyophilized plasma specimens in duplicate
- Two shipments per year

Apixaban, Dabigatran, Fondaparinux, Rivaroxaban Anticoagulant Monitoring APXBN, DBGN, FNPX, RVBN

Analyte	Program Code				Challenges per Shipment
	APXBN	DBGN	FNPX	RVBN	
Activated partial thromboplastin time*	▮	▮	▮	▮	3
Prothrombin time*	▮	▮	▮	▮	3
Thrombin time		▮			3
Apixaban	▮				3
Dabigatran		▮			3
Fondaparinux			▮		3
Rivaroxaban				▮	3

*Not appropriate for meeting regulatory requirements, see page 162.

Program Information

- Three 1.0-mL lyophilized plasma specimens
- Two shipments per year

Activated Clotting Time Series CT, CT1, CT2, CT3, CT5

Instrument/Cartridge	Program Code					Challenges per Shipment
	CT	CT1	CT2	CT3	CT5	
Helena Actalyke®	▮					3
ITC Hemochron® CA510/FTCA510	▮					3
ITC Hemochron FTK-ACT	▮					3
ITC Hemochron Jr. Signature/ACT+				▮		3
ITC Hemochron Jr. Signature/ACT-LR			▮			3
ITC Hemochron P214/P215	▮					3
i-STAT® Celite® and Kaolin ACT					▮	3
Medtronic HemoTec ACT/ACTII/ACT Plus HR-ACT		▮				3
Medtronic HemoTec ACT/ACTII/ACT Plus LR-ACT		▮				3
Medtronic HemoTec ACT/ACTII/ACT Plus R-ACT		▮				3
Medtronic Hepcon HMS Plus		▮				3

For multiple instrument reporting options, see the Quality Cross Check programs, CTQ-CT3Q and CT5Q, on page 167.

Program Information

- CT - Three 3.0-mL lyophilized whole blood specimens with corresponding diluents
- CT1 - Three 1.7-mL lyophilized whole blood specimens with corresponding diluents
- CT2 - Three 0.5-mL lyophilized whole blood/diluent ampules
- CT3 - Three 0.5-mL lyophilized whole blood/diluent ampules
- CT5 - Three 1.7-mL lyophilized whole blood specimens with corresponding diluents
- Two shipments per year

Quality Cross Check—Activated Clotting Time Series CTQ, CT1Q, CT2Q, CT3Q, CT5Q

Instrument/Cartridge	Program Code					Challenges per Shipment
	CTQ	CT1Q	CT2Q	CT3Q	CT5Q	
Helena Actalyke®	▮					3
ITC Hemochron® CA510/FTCA510	▮					3
ITC Hemochron FTK-ACT	▮					3
ITC Hemochron Jr. Signature/ACT+				▮		3
ITC Hemochron Jr. Signature/ACT-LR			▮			3
ITC Hemochron P214/P215	▮					3
i-STAT Celite® and Kaolin ACT					▮	3
Medtronic HemoTec ACT/ACTII/ACT Plus HR-ACT		▮				3
Medtronic HemoTec ACT/ACTII/ACT Plus LR-ACT		▮				3
Medtronic HemoTec ACT/ACTII/ACT Plus R-ACT		▮				3
Medtronic Hepcon HMS Plus		▮				3

These programs do not meet regulatory requirements for proficiency testing; see programs CT-CT3 and CT5 on page 166. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- CTQ - Three 3.0-mL lyophilized whole blood specimens in triplicate with corresponding diluents
- CT1Q - Three 1.7-mL lyophilized whole blood specimens in triplicate with corresponding diluents
- CT2Q - Three 0.5-mL lyophilized whole blood/ diluent ampules in triplicate
- CT3Q - Three 0.5-mL lyophilized whole blood/ diluent ampules in triplicate
- CT5Q - Three 1.7-mL lyophilized whole blood specimens in triplicate with corresponding diluents
- Report up to three instruments
- Two shipments per year

Platelet Function PF, PF1

Instrument/Method	Program Code		Challenges per Shipment
	PF	PF1	
Platelet aggregation	▮		2
PFA-100		▮	2
Helena Plateletworks®		▮	2

These programs require the draw of a normal donor sample.

Program Information

- PF - Four 3.2% sodium citrate vacuum tubes; two 10.0-mL plastic tubes
- PF1 - Four 3.2% sodium citrate vacuum tubes; two 10.0-mL plastic tubes
- Two shipments per year

Viscoelastic Studies VES

Instrument	Program Code	Challenges per Shipment
	VES	
TEG® 5000, TEG 6s, ROTEM®	▮	2

Program Information

- Two 1.0-mL lyophilized plasma specimens
- Two shipments per year

CE credit

Viscoelastic Testing—Whole Blood VES1

NEW

Instrument	Program Code	Challenges per Shipment
	VES1	
Hemosonics Quantra®, ROTEM sigma	▮	2

This program requires the draw of a normal donor sample.

Program Information

- Four 3.2% sodium citrate vaccum tubes; two 4.0-mL pierceable cap tubes
- Two shipments per year

CE credit

Coagulation Calibration Verification/Linearity LN35, LN36, LN37

Analyte	Program Code			
	LN35	LN36	LN37	Target Ranges
Antithrombin activity	▮			10%–130%
Protein C activity	▮			10%–100%
Heparin, low molecular weight		▮		0.1–2.0 U/mL
Heparin, unfractionated		▮		0.1–1.3 U/mL
von Willebrand factor antigen			▮	5%–140%

The LN35, LN36, and LN37 CVL programs meet the CAP Accreditation requirements HEM.38009, 38010, and 38011.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN35, LN37 - Six 1.0-mL frozen plasma specimens per mailing
- LN36 - Twelve 1.0-mL frozen plasma specimens per mailing, which include six for low molecular weight heparin and six for unfractionated heparin
- Two shipments per year; ships on dry ice

D-Dimer Calibration Verification/Linearity LN42

Analyte	Program Code	
	LN42	LN42 Target Range
D-dimer	▮	220–5,500 ng/mL FEU

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 1.0-mL plasma specimens
- Two shipments per year

Fibrinogen Calibration Verification/Linearity LN44

Analyte	Program Code	
	LN44	LN 44 Target Range
Fibrinogen	▮	80–900 mg/dL

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- Six 1.0-mL frozen plasma specimens
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year; ships on dry ice

Drug-Specific Platelet Aggregation PIA, PIAX

Procedure	Program Code		Challenges per Shipment
	PIA	PIAX	
Aspirin assay	▮	▮	3
PRU test	▮	▮	3

Program Information

- PIA - Three lyophilized specimens with diluents
- PIAX - All program PIA specimens in duplicate
- For use with the Accumetrics VerifyNow® System
- Kit includes sufficient material to perform one assay; multiple assay reporting requires the purchase of PIAX
- Two shipments per year

Whole Blood Coagulation
WP3, WP4, WP6, WP9, WP10

Analyte	Challenges per Shipment				
	Program Code				
	WP3	WP4	WP6	WP9	WP10
International normalized ratio (INR)	5	5	5	5	3
Prothrombin time	5	5	5	5	–

For method compatibility, see instrument matrix below.

Program Information

- WP3 - Five 1.0-mL lyophilized plasma specimens with corresponding diluents
- WP4, WP6 - Five 0.5-mL unitized lyophilized blood specimens
- WP9 - Five 0.3-mL lyophilized plasma specimens
- Three shipments per year
- WP10 - Three 0.3-mL lyophilized plasma specimens with corresponding diluents; two shipments per year

Whole Blood Coagulation, Instrument Matrix

Instrument	Program Code				
	WP3	WP4	WP6	WP9	WP10
Abbott CoaguSense™	▮				
IL GEM PCL		▮	▮		
ITC Hemochron Jr. Signature/Signature +, Signature Elite and Jr. II – Citrated cuvette		▮			
ITC Hemochron Jr. Signature/Signature +, Signature Elite and Jr. II – Noncitrated cuvette			▮		
i-STAT	▮				
Roche CoaguChek XS Plus, XS Pro, and CoaguChek Pro II				▮	
Roche CoaguChek XS System					▮
Siemens Xprecia Stride				▮	

Platelet Mapping PLTM

Analyte	Program Code	Challenges per Shipment
	PLTM	
AA % aggregation/inhibition	▮	2
ADP % aggregation/inhibition	▮	2

This program requires the draw of a normal donor sample.

Program Information

- One 3.2% sodium citrate and two heparin vacuum tubes; two 3.5-mL plastic tubes; one vial of 0.2M $CaCl_2$
- For use with the Haemonetics Platelet Mapping® assay
- Two shipments per year

Improve the reliability of your patient results with CAP Survey Validated Materials

Use the same material that is sent in the Surveys program to:

- Identify and troubleshoot instrument/method problems
- Correlate results with other laboratories or instruments
- Document correction of problems identified in Surveys
- Utilize material with confirmed results as an alternative external quality control
- Identify potential proficiency testing failures

Each laboratory receives a Survey Participant Summary, which includes readily available results.

Coagulation—Limited, Validated Material

Validated Material	Program Code	Corresponding Survey	Page
Coagulation	CGM	CGL	162

Program Information

- Seven 1.0-mL lyophilized plasma specimens and one 2.0-mL serum specimen; three shipments per year
- One 1.0-mL liquid plasma specimen will replace one 1.0-mL lyophilized plasma specimen for D-dimer testing in one shipment per year

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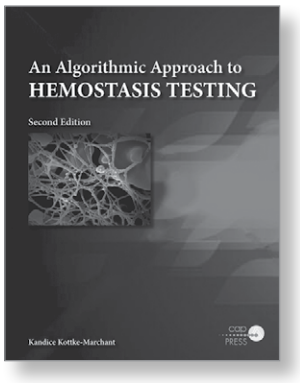

Item number: PUB223
Hardcover; 480 pages; 175+ figures, tables, and algorithms; 2016

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- Mycology Benchtop Reference Guide (MBRG)
- Parasitology Benchtop Reference Guide (PBRG)

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15 Microbiology

Microbiology testing is changing at a rapid pace—so is our proficiency testing.

- Molecular and antigen testing for the presence of the SARS-CoV-2 virus (COV2, COVAG).
- Molecular testing for bacterial blood culture (BCM) and yeast blood culture (YBC).
- Molecular testing for joint infections utilizing the joint infection panel (JIP) and meningitis/encephalitis panel, 5 challenge (IDM5).
- Molecular testing for *Mycobacterium tuberculosis* and rifampin resistance (MTR5).

Microbiology

New Programs NEW

Discontinued Programs

Bacterial Strain Typing, Staphylococcus (BSTS)
Herpes Simplex Virus DFA (HC2)
PNA FISH (PNA1, PNA2)

Microbiology

- Participants must report a minimum of five specimens, three times per year to meet CLIA requirements for each of the subspecialties of microbiology (Bacteriology, Mycobacteriology*, Mycology, Parasitology, and Virology), for regulated testing
  *Mycobacteriology requires five specimens, two times per year
- CLIA regulated tests are bolded
- If any of the tests performed become(s) waived by the FDA mid-year, your laboratory is responsible for maintaining five challenges per test event for the remaining non-waived tests in that subspecialty

Guide to Molecular Microbiology Testing

Use this flowchart as a guide for ordering the appropriate Molecular Microbiology programs for your laboratory's testing menu. Participants must report five specimens for each mailing to meet CLIA requirements for the subspecialties of microbiology. See the following pages for more detailed information about each program.

Do you perform molecular testing on Chlamydia or GC only?	Do you perform nucleic acid amplification other than GC?	Do you perform viral load testing only?	Do you perform molecular multiplexing?
↓ YES	↓ YES	↓ YES	↓ YES
Select from the following: ▪ **HC6, HC6X, HC7** *Chlamydia*/GC Nucleic Acid Amplification (page 190)	Select from the following: ▪ **ID1, ID1T, ID2, ID5 , IDN, IDO** Nucleic Acid Amplification (pages 200, 202-203, 205) ▪ **D1** Throat Culture (page 177) ▪ **MRS2M, MRS5M** MRSA Screen, Molecular (page 186-187) ▪ **BOR** *Bordetella pertussis/ parapertussis* (page 184) ▪ **CDF5** *C. difficile* Detection (page 185) ▪ **MGEN** *Mycoplasma genitalium* (page 189) ▪ **TVAG** *Trichomonas vaginalis* (page 191) ▪ **VBDM** Zika (page 204)	Select from the following: ▪ **HV2** HIV Viral Load (page 203) ▪ **HCV2, HBVL, HBVL5** Hepatitis Viral Load (page 203) ▪ **VLS, VLS2** Viral Load (page 204)	Select from the following: ▪ **ID3** Nucleic Acid Amplification, Respiratory Limited (page 203) ▪ **IDM5, IDME** Meningitis/Encephalitis Panel (page 207) ▪ **IDPN** Infectious Disease Pneumonia Panel (page 209) ▪ **IDR** Infectious Disease Respiratory Panel (page 208) ▪ **GIP, GIP5** Gastrointestinal Panel (page 210) ▪ **BCM** Bacterial Blood Culture (page 183) ▪ **MVP** Molecular Vaginal Panel (page 190)

Bacteriology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Guide for Ordering Regulated Bacteriology Programs

Procedure	Program Code					
	D	D2	RMC	D3	MC4	D1
Bacterial identification	▮	▮	▮	▮	▮	▮
Gram stain	▮	▮	▮	▮		
Antimicrobial susceptibility testing	▮	▮	▮			
Bacterial antigen detection	▮		▮		▮	

Participants must report five specimens for each mailing to meet CLIA requirements for the subspecialty of bacteriology. See the following pages for more detailed information about each program.

Bacteriology D

Procedure	Program Code	Challenges per Shipment
	D	
Antimicrobial susceptibility testing	▮	1 graded, 1 ungraded
Bacterial antigen detection	▮	2
Bacterial identification	▮	5
Gram stain	▮	1

Additional Information

Antigen detection challenges will be included in the following shipments:

- Shipment A: *C. difficile* antigen/toxin* and spinal fluid meningitis panel
- Shipment B: Spinal fluid meningitis panel and Group A *Streptococcus*
- Shipment C: *C. difficile* antigen/toxin* and Group A *Streptococcus*

*CMS has clarified that the *C. difficile* toxin test is not subject to CLIA regulations; therefore, toxin results will not be sent to CMS. Only *C. difficile* antigen results will be sent.

Program Information

- Five swab specimens with diluents in duplicate for culture
- Culture sources may include wounds, blood, respiratory, urines, stools, and anaerobes on a rotational basis
- Two specimens for bacterial antigen detection from the following:
  - One swab for Group A *Streptococcus*
  - One 1.0-mL lyophilized specimen for spinal fluid meningitis testing
  - One 0.5-mL lyophilized specimen for *Clostridiodes (Clostridium) difficile*, for use with rapid or molecular testing methods
- Three shipments per year

CE credit

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Expanded Bacteriology DEX

Analyte	Program Code	Challenges per Shipment
	DEX	
Live organisms	▮	2

Additional Information

Expanded Bacteriology (DEX) is an educational opportunity that provides:

- Culture and susceptibility testing challenges for microbiology laboratories that perform complete identification and susceptibility of bacterial isolates including less common or problematic bacteria
- More exposure to emerging bacterial pathogens and novel resistance mechanisms
- Ability to recognize and identify organisms that exhibit multiple drug-resistance patterns
- Recovery and identification of mixed pathogens such as yeast, aerobic, and anaerobic bacteria in cultures containing multiple organisms

Program Information

- Two swab specimens in duplicate with diluents to perform bacterial identification and susceptibility (when directed)
- Three shipments per year

Microbiology Bench Tools Competency MBT

Procedure	Program Code	Challenges per Shipment
	MBT	
Bacterial identification	▮	6
Antimicrobial susceptibility testing	▮	2

Additional Information

Microbiology Bench Tools Competency (MBT) is a supplemental module for competency assessment and an educational resource for microbiology laboratories. The module:

- Provides organisms that challenge the basic elements of testing at the microbiology bench, including direct observation, monitoring, recording, and reporting of test results
- Can be used for both competency and educational purposes, including teaching and training pathology residents, new employees, and medical and MT/MLT students
- Provides identification and susceptibility results for supervisor use

This is not a proficiency testing program and participants will not return results to the CAP.

Program Information

- Six swab specimens with diluents for bacterial identification and susceptibility
- Culture sources will vary with each shipment
- Results will be provided with the kit to assess personnel competency
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

GC, Throat, and Urine Cultures D1, D2, D3

Procedure	Program Code			Challenges per Shipment
	D1	D2	D3	
Antimicrobial susceptibility testing		▮		1
Bacterial identification	▮	▮	▮	5
Gram stain		▮	▮	1
Culture source:	Throat	Urine	Cervical	
Microbiologic level:	Presence or absence of Group A *Streptococcus* determination	Organisms identified to the extent of your laboratory's protocol	Presence or absence of *Neisseria gonorrhoeae* determination	

Program Information

- D1- Five swab specimens with diluents in duplicate
- D2 - Five loop specimens with diluents in duplicate, with one susceptibility challenge, and one Gram stain challenge
- D3 - Five loop specimens with diluents in duplicate, and one Gram stain challenge
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year

CE credit BIOHAZARD

Identify microorganisms quickly and confidently.

Gram Stain Benchtop Reference Guide is an illustrated guide to gram-positive and gram-negative organisms. Its rugged construction is well suited for students and medical technologists for heavy use at the benchtop.

Features include:

- Theory and application of the Gram stain
- Detailed descriptions of microbial morphology, quantitation, and indicators of pathology
- Examples of more than 35 gram-positive and gram-negative organisms found in blood, body fluids, CSF, urine, and the genital and respiratory tracts
- Seven tabbed sections for easy reference

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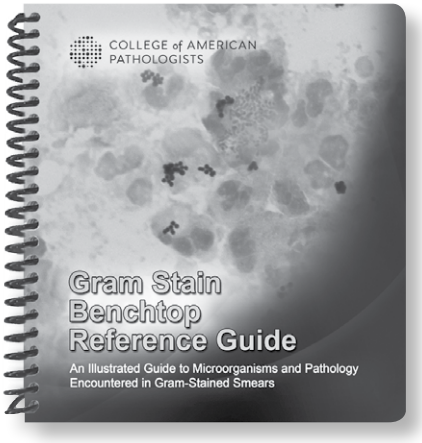

Item number: GSBRG
Spiral bound; 100 pages;
115+ images and tables; 2017

BIOHAZARD Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Antimicrobial Susceptibility Testing: Monitoring and Trend Analysis QP211

Introduction

Since antimicrobial resistance has increased steadily and varies by geographic location and patient population, the availability of up-to-date cumulative antimicrobial susceptibility data is crucial. These data are also essential to monitor emerging trends in resistance at the local level to support clinical decision-making, evaluate infection control interventions, inform and participate in antimicrobial stewardship efforts, optimize microbiology susceptibility testing and reporting, and guide Pharmacy and Therapeutics Committee formulary decisions.

Enrollment in this study assists laboratories in meeting the CAP Laboratory Accreditation Program Checklist statement MIC.21946, Cumulative Susceptibility Data, and The Joint Commission Antimicrobial Stewardship Standard, MM 09.01.01.

Objectives

This study will assist laboratory and health care facilities with antimicrobial stewardship by ongoing comparison and trending of cumulative susceptibility rates for common microorganisms within a facility over time and between participating facilities.

Data Collection

New participants will provide cumulative susceptibility data for each year from 2019 to 2021, while continuing participants will provide data for 2021. Susceptibility rate data including the number of isolates tested will be collected for select microorganisms including *Enterobacter cloacae* complex, *Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis, Pseudomonas aeruginosa*, methicillin-susceptible *Staphylococcus aureus* (MSSA) and methicillin-resistant *Staphylococcus aureus* (MRSA), and *Enterococcus* species. Continuing participants may also provide previous data from 2019 to 2020 for MSSA and MRSA. Standardized data collection methods will be used by all participants in accordance with recommended guidelines.

Performance Indicator

- Trend of antimicrobial susceptibility rates for select microorganisms and antibiotics from 2018 to 2021, as applicable

This is a one-time study conducted in the first quarter.

Routine Microbiology Combination RMC

Procedure	Program Code	Challenges per Shipment
	RMC	
Antimicrobial susceptibility testing	▮	1
GC culture	▮	2
Gram stain	▮	2
Group A *Streptococcus* antigen detection*	▮	1
Throat culture	▮	3
Urine culture	▮	3

*If your laboratory uses a waived method for Group A *Streptococcus*, these results will not count toward the required five challenges for the subspecialty of bacteriology.

Program Information

- Five loop specimens with diluents in duplicate, three swab specimens with diluents in duplicate, and one swab specimen for bacterial antigen detection
- Urine culture will have one susceptibility challenge
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year

CE credit

BIOHAZARD

BIOHAZARD Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Urine Colony Count MC3, MC4

Procedure	Challenges per Shipment	
	Program Code	
	MC3	MC4
Urine colony count/**urine culture identification**	2	5
Group A *Streptococcus* antigen detection*		3
Throat culture		3

*If your laboratory uses a waived method for Group A *Streptococcus*, these results will not count toward the required five challenges for the subspecialty of bacteriology.

Program Information

- MC3 - Two urine specimens with diluents
- MC4 - Five urine specimens with diluents, three swab specimens with diluents in duplicate, and three swab specimens for bacterial antigen detection
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year

CE credit BIOHAZARD

Gram Stain D5

Procedure	Program Code	Challenges per Shipment
	D5	
Gram stain	▮	5

Program Information

- Five air-dried, methanol-fixed unstained glass slides
- Three shipments per year

CE credit

BIOHAZARD Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Technical Competency Assessment of Gram Stains QPD10/QPD25

Introduction

Gram stain is a commonly performed bacterial stain in clinical microbiology laboratories. It is often the starting point guiding microbiological workup and initial clinical diagnosis and therapy. It is important for technologists who read Gram stains to provide an accurate interpretation based on reaction type and microscopic morphology in order to provide presumptive identifications and quantification of bacteria and fungi in clinical specimens.

Objectives

This study will help assess the effectiveness of educational and practical experience policies and procedures dedicated to the laboratory's efforts in maintaining technologist skills in the morphological assessment of Gram stains. Participation in this study will help management assess the technologist's ability to evaluate Gram stains using online, whole slide images. These cases provide a standardized review and evaluation for each technologist. The study will help management meet applicable CLIA, CAP Laboratory Accreditation, and Joint Commission laboratory requirements for personnel competency requirements and consistency of reporting amongst staff.*

Data Collection

A series of online, whole slide images of Gram stained smears using DigitalScope technology will be provided to each participating institution to assess technologists' ability to detect various microorganisms. Technologists will provide information about their work experience related to Gram stains, continuing education, and professional background. Information will be collected from each laboratory site to provide information about their continuing education requirements in microbiology, and relevant laboratory procedures and policies related to Gram stain assessment.

Performance Indicators

- Individual technologist score (%) for each Gram stain case, and overall based on a standardized competency assessment method
- Overall laboratory score based on the facility's individual technologist performance(s)

Reports are provided at institution and technologist levels. A summary of responses to the general questions will be provided for participants.

Program Information

To meet your staff technical competency assessment requirements:

- Result forms for up to 10 technologists (QPD10)
- Result forms for up to 25 technologists (QPD25)
- Multiple kits may be purchased to accommodate quantity needed

***Participation in this study helps laboratories meet:**

- CLIA personnel requirements (Subpart M, 42 CFR §493.1)
- CAP Laboratory Accreditation Program Microbiology Checklist statement MIC.11060, Culture Result Reporting: Personnel performing Gram stains for this purpose are subject to competency assessment
- CAP Laboratory Accreditation Program Microbiology Checklist statement MIC.11350, Morphologic Observation Evaluation: The laboratory evaluates consistency of morphologic observation among personnel performing Gram, trichrome and other organism stains at least annually
- CAP Laboratory Accreditation Program Checklist statement GEN.55500, Competency Assessment of Testing Personnel
- Joint Commission standards HR. 01.05.03, 01.06.01, and 01.07.01 for training and education, competency, and evaluation of hospital personnel

This is a one-time study conducted in the late third quarter.

Virtual Gram Stain Competency VGS1, VGS2

Procedure	Program Code		Challenges per Shipment
	VGS1	VGS2	
Virtual gram stain basic	▮		3
Virtual gram stain advanced		▮	3

Additional Information

- Virtual Gram Stain Basic Competency (VGS1) is for general and new laboratory technologists/technicians. Participants will assess the quality of specimens and stains and will report artifacts and detailed gram-positive and gram-negative morphology. Challenges will include specimens such as CSF, body fluids, and positive blood cultures.
- Virtual Gram Stain Advanced Competency (VGS2) is for experienced laboratory technologists/technicians and microbiologists. Participants will receive challenging images of sputum, body fluids, and other specimens to assess the quality, quantity, and typical morphology of both gram-positive and gram-negative organisms appropriate for the site.
- See system requirements on page 13.

Program Information

- Three online, whole slide images
- Results included in the kit to assess personnel competency
- Powered by DigitalScope® technology
- Two shipments per year

Rapid Group A Strep Antigen Detection D6

Procedure	Program Code	Challenges per Shipment
	D6	
Group A *Streptococcus* antigen detection*	▮	5

*If your laboratory uses a waived method for Group A *Streptococcus*, these results will not count toward the required five challenges for the subspecialty of bacteriology.

Program Information

- Five swab specimens
- Not compatible with molecular- and culture-based methods
- Three shipments per year

CE credit

Rapid Group A Strep Antigen Detection, Waived D9

Procedure	Program Code	Challenges per Shipment
	D9	
Group A *Streptococcus* antigen detection	▮	2

Program Information

- Two swab specimens
- Not compatible with molecular- and culture-based methods
- Two shipments per year

Group B Strep Detection D8

Analyte	Program Code	Challenges per Shipment
	D8	
Group B *Streptococcus*	▮	5

Program Information

- Five swab specimens with diluents
- Compatible with molecular- and culture-based methods
- Three shipments per year

Bacterial Antigen Detection LBAS, SBAS

Procedure	Program Code		Challenges per Shipment
	LBAS	SBAS	
Legionella pneumophila antigen detection	▮		2
Streptococcus pneumoniae antigen detection		▮	2

Program Information

- LBAS, SBAS - Two 0.5-mL liquid simulated clinical specimens
- Two shipments per year

Blood Culture BCS

Procedure	Program Code	Challenges per Shipment
	BCS	
Blood culture bacterial detection and identification	▮	2

Program Information

- Two specimens with diluents for inoculation of blood culture bottles
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Blood Culture, *Staphylococcus aureus* BCS1

Analyte	Program Code	Challenges per Shipment
	BCS1	
Staphylococcus aureus/MRSA	▮	3

Program Information

- Three specimens with diluents for inoculation of blood culture bottles
- Compatible with molecular methods for detection of *S. aureus*/MRSA from positive blood culture bottles
- Two shipments per year

Bacterial Blood Culture, Molecular BCM

Procedure	Program Code	Challenges per Shipment
	BCM	
Blood culture bacterial identification	▮	5

Program Information

- Five 1.0-mL simulated blood culture fluid specimens
- For laboratories using molecular multiplex panels
- Three shipments per year

Additional Information

- This program is for the identification of gram-positive and gram-negative organisms, including common resistance mechanisms isolated from blood culture bottles.
- This program is not for the inoculation of blood culture bottles.

Color Atlas of Mycology (PUB226)

Built upon a foundation of more than 15 years of proficiency testing data, this resource book is designed to assist pathologists and medical technologists in the laboratory identification of fungi using the most recent taxonomic classifications. The text highlights diagnostic clusters of incorrect identifications and addresses conceptual classification issues. Comprehensive and complete, this book merges in vitro mycology (colonies on plated media/LPAB preparations) with in vivo mycology (histology/cytology).

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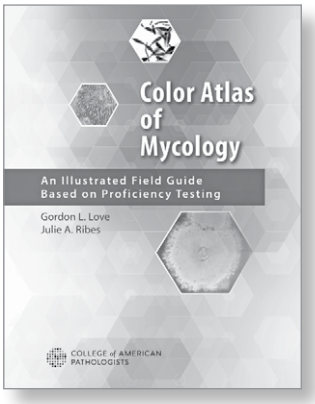


Item number: PUB226
Hardcover; 800+ images and tables; 2018

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Blood Culture Contamination QT2

Despite advances in blood culture practices and technology, false-positive blood culture results due to contaminants continue to be a critical problem. Blood culture contamination rate, the primary indicator of preanalytic performance in microbiology, is associated with increased length of hospital stay, additional expense, and the administration of unnecessary antibiotics.

The CAP and other accrediting organizations require you to monitor and evaluate key indicators of quality for improvement opportunities. Use this monitor to help meet CAP Laboratory Accreditation Checklist statements MIC.22630 and MIC.22635: "The laboratory must determine and regularly review the number of contaminated cultures. Tracking the contamination rate and providing feedback to units and persons drawing cultures is one method that has been shown to reduce contamination rates." This will also help laboratories meet The Joint Commission Standard QSA 04.07.01 EP3.

Objective

Determine the rate of blood culture contamination using standardized criteria for classifying contaminants.

Data Collection

On a monthly basis, participants will tabulate the total number of blood cultures processed and the total number of contaminated blood cultures. Blood cultures from neonatal patients are tabulated separately. For the purposes of this study, participants will consider a blood culture to be contaminated if they find one or more of the following organisms in only one of a series of blood culture specimens: Coagulase-negative *Staphylococcus; Micrococcus;* Alpha-hemolytic viridans group streptococci; *Propionibacterium acnes*; *Corynebacterium* sp. (diptheroids); or *Bacillus* sp. Participants have the option to monitor institution-specific subgroups, for example, a specific department or patient population.

Performance Indicators

- Neonatal contamination rate (%)
- Other contamination rate (%)
- Overall contamination rate (%)

Look for your input forms approximately two weeks prior to the quarter.

Bordetella pertussis/parapertussis, Molecular BOR

Analyte	Program Code	Challenges per Shipment
	BOR	
Bordetella pertussis	▮	3
Bordetella parapertussis	▮	3

Program Information

- Three swab specimens
- Designed for molecular techniques
- Two shipments per year

Carbapenem-resistant Organisms CRO

Analyte	Program Code	Challenges per Shipment
	CRO	
KPC	▮	3
IMP	▮	3
NDM	▮	3
OXA-48	▮	3
VIM	▮	3

Program Information

- Three 130-µL specimens
- Compatible with Cepheid GeneXpert
- Two shipments per year

Campylobacter CAMP

Analyte	Program Code	Challenges per Shipment
	CAMP	
Campylobacter	▮	2

Program Information
- Two swabs with diluents in duplicate
- For use with rapid antigen, culture-based testing, and molecular methods
- Two shipments per year

C. difficile, 2 Challenge CDF2

Analyte	Program Code	Challenges per Shipment
	CDF2	
Clostridiodes (Clostridium) difficile antigen/toxin	▮	2

Program Information
- Two 0.5-mL lyophilized specimens, for use with rapid or molecular testing methods
- Two shipments per year

C. difficile, 5 Challenge CDF5

Analyte	Program Code	Challenges per Shipment
	CDF5	
***Clostridiodes (Clostridium) difficile* antigen**/toxin	▮	5

CMS has clarified that the *C. difficile* toxin test is not subject to CLIA regulations; therefore, toxin results will not be sent to CMS. Only *C. difficile* antigen results will be sent.

Program Information
- Five 0.5-mL lyophilized specimens, for use with rapid or molecular testing methods
- Three shipments per year

C. trachomatis Antigen Detection HC1, HC3

Procedure	Program Code		Challenges per Shipment
	HC1	HC3	
***C. trachomatis* antigen detection (DFA)**	▮		5
***C. trachomatis* antigen detection (EIA)**		▮	5

Program Information
- HC1 - Five 5-well slide specimens; for the detection of chlamydial elementary bodies by DFA
- HC3 - Five 2.0-mL liquid specimens for *Chlamydia* antigen testing by EIA
- Three shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Fecal Lactoferrin FLAC

Analyte	Program Code	Challenges per Shipment
	FLAC	
Fecal lactoferrin	▮	3

Program Information
- Three 0.5-mL simulated stool specimens
- For use with rapid methods
- Two shipments per year

Helicobacter pylori Antigen, Stool HPS

Procedure	Program Code	Challenges per Shipment
	HPS	
Helicobacter pylori antigen detection	▮	2

Program Information
- Two 0.5-mL fecal suspensions
- Two shipments per year

Methicillin-resistant *Staphylococcus aureus* Screen, 2 Challenge MRS

Procedure	Program Code	Challenges per Shipment
	MRS	
MRSA/MSSA detection	▮	2

Program Information
- Two swab specimens with diluents
- For laboratories performing culture-based testing only or using culture and molecular testing
- Two shipments per year

MRSA Screen, Molecular, 2 Challenge MRS2M

Procedure	Program Code	Challenges per Shipment
	MRS2M	
MRSA/MSSA/SA detection	▮	2

Program Information
- Two swab specimens (in duplicate)
- For use with molecular methods that detect *mecA*
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Methicillin-resistant *Staphylococcus aureus* Screen, 5 Challenge MRS5

Procedure	Program Code	Challenges per Shipment
	MRS5	
MRSA/MSSA **detection**	▮	5

Program Information

- Five swab specimens with diluents
- For laboratories performing culture-based testing only or using culture and molecular testing
- Three shipments per year

MRSA Screen, Molecular, 5 Challenge MRS5M

Procedure	Program Code	Challenges per Shipment
	MRS5M	
MRSA/MSSA/SA **detection**	▮	5

Program Information

- Five swab specimens (in duplicate)
- For use with molecular methods that detect *mecA*
- Three shipments per year

Laboratory Preparedness Exercise LPX

Analyte	Program Code	Challenges per Shipment
	LPX	
Live organisms	▮	3

The Laboratory Preparedness Exercise (LPX) was developed as a collaborative effort between the College of American Pathologists, the Centers for Disease Control and Prevention (CDC), and the Association of Public Health Laboratories (APHL). Laboratories will be sent live organisms that either exhibit characteristics of bioterrorism agents or demonstrate epidemiologic importance and will be expected to respond following Laboratory Response Network Sentinel Laboratory Guidelines if a bioterrorism agent is suspected. All agents provided are excluded from the CDC's select agent list. These may include strains of *Bacillus anthracis, Yersinia pestis, Francisella tularensis,* and *Brucella abortus* that have been modified and are safe for testing in a laboratory that contains a certified Class II Biological Safety Cabinet and is capable of handling Category A and B agents.

Program Information

- Three swab specimens with diluents
- Not available to international customers due to United States export law restrictions
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Rapid Urease RUR

Analyte	Program Code	Challenges per Shipment
	RUR	
Urease	▮	3

Program Information

- Three simulated gastric biopsy specimens
- For use with methods such as CLOTEST®
- Two shipments per year

Stool Pathogen SP, SPN, SP1

Analyte	Program Code			Challenges per Shipment
	SP	SPN	SP1	
Adenovirus 40/41	▮	▮		2
C. difficile antigen/toxin	▮	▮		2
Rotavirus	▮	▮		2
Shiga toxin	▮			2
Norovirus			▮	1

Program Information

- SP - Two 1.0-mL liquid specimens; for use with rapid or molecular testing methods; not available to international customers due to United States export law restrictions
- SPN - Two 1.0-mL liquid specimens; for use with rapid or molecular testing methods; intended for international laboratories
- SP1 - One 1.0-mL liquid specimen compatible with molecular methods only
- Two shipments per year

Shiga Toxin ST

Analyte	Program Code	Challenges per Shipment
	ST	
Shiga toxin	▮	2

Program Information

- Two 0.5-mL liquid specimens
- For use with direct shiga toxin testing only; not compatible with culture methods, cytotoxicity assays, or PCR
- Not available to international customers due to United States export law restrictions
- Two shipments per year

Bacterial Vaginosis BV

Procedure	Program Code	Challenges per Shipment
	BV	
Bacterial vaginosis detection	▮	3

Program Information

- Three 1.0-mL liquid specimens
- For OSOM® BVBlue users
- Two shipments per year

Vaginitis Screen VS, VS1

Analyte	Program Code		Challenges per Shipment
	VS*	VS1**	
Candida sp.	▮		5
Gardnerella vaginalis	▮		5
Trichomonas vaginalis	▮	▮	5

*The biohazard warning applies to program VS.
**Molecular users are encouraged to use *Trichomonas vaginalis*, Molecular (TVAG), on page 191.

Program Information

- VS - Five swabs for DNA probe technology; BD Affirm™ VP III probe detection method; three shipments per year

- VS1 - Five swabs for methods such as Sekisui OSOM *Trichomonas* Rapid Test, *Trichomonas vaginalis*; three shipments per year

Mycoplasma genitalium, Molecular MGEN

Analyte	Program Code	Challenges per Shipment
	MGEN	
Mycoplasma genitalium	▮	3

Program Information

- Three 1.0-mL liquid specimens
- Designed for molecular techniques
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Molecular Vaginal Panel MVP

Analyte	Program Code	Challenges per Shipment
	MVP	
Candida species group	▮	5
Candida krusei	▮	5
Candida glabrata	▮	5
Trichomonas vaginalis	▮	5
Bacterial vaginosis	▮	5

Program Information

- Five 1.0-mL liquid simulated vaginal specimens
- Designed for molecular methods such as BD MAX and Hologic
- Three shipments per year

C. trachomatis and *N. gonorrhoeae* by NAA HC6, HC6X, HC7

Procedure	Program Code		Challenges per Shipment
	HC6*, HC6X*	HC7	
Nucleic acid amplification (NAA)	▮		5
Nucleic acid amplification (NAA/DNA)		▮	5

*The biohazard warning applies to programs HC6 and HC6X.

Program Information

- HC6 - Three swab specimens and two 1.0-mL liquid simulated urine specimens
- HC6X - Three swab specimens; two 1.0-mL liquid simulated urine specimens in duplicate
- Three shipments per year

- HC7 - Five 1.5-mL simulated body fluid specimens; designed for Cepheid users
- Three shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Vaginitis Screen, Virtual Gram Stain VS2

Procedure	Program Code	Challenges per Shipment
	VS2	
Interpretation of gram-stained vaginal smears	▮	3

See system requirements on page 13.

Program Information

- Three online, whole slide images
- Powered by DigitalScope technology
- Two activities per year; your CAP shipping contact will be notified via email when the activity is available

Trichomonas vaginalis, Molecular TVAG

Analyte	Program Code	Challenges per Shipment
	TVAG	
Trichomonas vaginalis	▮	3

Program Information

- Three 1.5-mL liquid specimens
- Designed for molecular techniques
- Two shipments per year

Vancomycin-resistant *Enterococcus* VRE

Procedure	Program Code	Challenges per Shipment
	VRE	
Vancomycin-resistant *Enterococcus* (VRE) detection	▮	2

Program Information

- Two swabs with diluents
- For use with molecular methods and culture-based testing
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Mycobacteriology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Mycobacteriology E

Procedure	Program Code	Challenges per Shipment
	E	
Acid-fast smear	▮	1
Antimycobacterial susceptibility testing	▮	1 graded, 1 ungraded
Mycobacterial identification*	▮	5

*This procedure requires identification of *Mycobacterium tuberculosis*.

Program Information

- Five simulated clinical isolates with diluents and one specimen for performing an acid-fast bacillus smear
- Identification may be performed by culture or molecular methods
- Two shipments per year

Mycobacteriology—Limited E1

Procedure	Program Code	Challenges per Shipment
	E1	
Acid-fast smear	▮	5
Mycobacterial culture	▮	5

Program Information

- Five simulated specimens for acid-fast smears and/or for the determination of the presence or absence of acid-fast bacillus by culture
- Two shipments per year

Molecular MTB Detection and Resistance MTR5, MTBR

Procedure	Challenges per Shipment	
	Program Code	
	MTR5	MTBR
Mycobacterium tuberculosis detection	5	3
Rifampin resistance	5	3

Program Information

- MTR5 - Five 1.25-mL simulated sputum specimens for use with molecular methods
- MTBR - Three 1.25-mL simulated sputum specimens for use with molecular methods
- Not suitable for culture
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Mycology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Mycology and Aerobic Actinomycetes F

Procedure	Program Code	Challenges per Shipment
	F	
Antifungal susceptibility testing	▮	1
Cryptococcal antigen detection	▮	2 per year
Mold and yeast identification	▮	5

Program Information

- Five loops for culture with diluents in duplicate and one 1.0-mL simulated cerebrospinal fluid specimen (A and B shipments only)
- Identification of yeasts, molds, and aerobic actinomycetes may be performed by molecular- and culture-based methods
- Three shipments per year

Yeast F1

Procedure	Program Code	Challenges per Shipment
	F1	
Antifungal susceptibility testing	▮	1
Cryptococcal antigen detection	▮	2 per year
Yeast identification	▮	5

Program Information

- Five loops for culture with diluents in duplicate and one 1.0-mL simulated cerebrospinal fluid specimen (A and B shipments only)
- Identification of yeast may be performed by molecular- and culture-based methods
- Three shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Candida Culture F3

Procedure	Program Code	Challenges per Shipment
	F3	
Yeast identification	▮	5

Program Information

- Five loops for culture with diluents in duplicate
- For laboratories identifying *Candida* sp. only
- Identification of *Candida* species may be performed by culture, molecular, and rapid methods
- Three shipments per year

Yeast Blood Culture, Molecular YBC

Procedure	Program Code	Challenges per Shipment
	YBC	
Blood culture yeast identification	▮	5

Additional Information

- This program is for identification of fungal organisms such as yeast isolated from blood culture bottles.
- This program is not for the inoculation of blood culture bottles.

Program Information

- Five 1.0-mL simulated blood culture fluid specimens
- For laboratories using molecular multiplex panels
- Three shipments per year

Cryptococcal Antigen Detection CRYP

Procedure	Program Code	Challenges per Shipment
	CRYP	
Cryptococcal antigen	▮	5

Program Information

- Five 1.0-mL simulated cerebral spinal fluids
- Three shipments per year

Galactomannan FGAL

Analyte	Program Code	Challenges per Shipment
	FGAL	
Galactomannan - *Aspergillus*	▮	3

Program Information

- Three liquid specimens
- For use with methods such as Bio-Rad Platelia™
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Fungal Serology FSER

Procedure	Program Code	Challenges per Shipment
	FSER	
Serological detection of specific fungal antibodies	▮	3

Program Information
- Three serum specimens
- For use with immunodiffusion methods
- Designed for the detection of antibodies to *Aspergillus, Blastomyces, Coccidioides,* and *Histoplasma*
- Two shipments per year

Fungal Smear FSM

Procedure	Program Code	Challenges per Shipment
	FSM	
KOH preparation/calcofluor white	▮	3

Program Information
- Three unstained slides
- Two shipments per year

India Ink IND

Procedure	Program Code	Challenges per Shipment
	IND	
India ink	▮	2

Program Information
- Two liquid specimens
- Two shipments per year

Pneumocystis jirovecii PCP1, PCP2, PCP4

Procedure	Program Code			Challenges per Shipment
	PCP1	PCP2	PCP4	
PCP – Calcofluor white stain	▮			3
PCP – DFA stain		▮		3
PCP – GMS stain			▮	3

Program Information
- Three images, each available as photographs and online images for *Pneumocystis jirovecii*
- Two shipments per year

Parasitology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Parasitology P, P3, P4, P5

Procedure	Challenges per Shipment			
	Program Code			
	P	P3	P4	P5
Fecal suspension (wet mount)	2	5	2	
Fecal suspension (*Giardia* and *Cryptosporidium* immunoassays and/or modified acid-fast stain)	2	1	1	5
Giemsa-stained blood smear	1			
Preserved slide (for permanent stain)	2		3	

Additional Information

- The proficiency testing materials used for the Parasitology programs contain formalin as a preservative.
- Modified acid-fast stain results do not meet CLIA requirements for parasite identification.
- Number of specimen types are indicated in chart.

Program Information

- P - Five specimens consisting of thin and thick films for blood and tissue parasite identification, preserved slides for permanent stain, 0.75-mL fecal suspensions for direct wet mount examination, photographs, and/or online images; two 0.75-mL fecal suspensions for *Giardia* and *Cryptosporidium* immunoassays and/or modified acid-fast stain
- P3 - Five 0.75-mL fecal suspensions for direct wet mount examination, photographs, and/or online images; one 0.75-mL fecal suspension for *Giardia* and *Cryptosporidium* immunoassays and/or modified acid-fast stain
- P4 - Five specimens consisting of 0.75-mL fecal suspensions for direct wet mount examination, preserved slides for permanent stain, photographs, and/or online images; one 0.75-mL fecal suspension for *Giardia* and *Cryptosporidium* immunoassays and/or modified acid-fast stain
- P5 - Five 0.75-mL fecal suspensions for *Giardia* and *Cryptosporidium* immunoassays and/or modified acid-fast stain
- Three shipments per year

Blood Parasite BP

Procedure	Program Code	Challenges per Shipment
	BP	
Blood parasite identification (thin/thick film sets*)	▮	5

*This program will include corresponding thick films when available.

Program Information
- Five Giemsa-stained blood film sets, photographs, and/or online images
- Percent parasitemia reporting is provided when appropriate for educational purposes
- A variety of blood parasites, including *Plasmodium, Babesia, Trypanosoma,* and filarial worms
- Three shipments per year

Rapid Malaria RMAL

Procedure	Program Code	Challenges per Shipment
	RMAL	
Rapid malaria detection	▮	3

Detects *Plasmodium falciparum* specific histidine-rich protein 2 (HRP2). May not be compatible with methods that use pLDH enzyme detection for mixed malaria infections.

Program Information
- Three 0.5-mL antigen specimens
- Two shipments per year

Expanded Parasitology PEX

Procedure	Program Code	Challenges per Shipment
	PEX	
Parasite identification	▮	3

This program provides an educational opportunity to challenge laboratory professionals' competency in the identification of parasites utilizing photo images.

Program Information
- Three images, each available as photographs and online images
- Two shipments per year

Ticks, Mites, and Other Arthropods TMO

Procedure	Program Code	Challenges per Shipment
	TMO	
Tick, mite, and arthropod identification	▮	3

Program Information
- Three images, each available as photographs and online images
- Two shipments per year

Worm Identification WID

Procedure	Program Code	Challenges per Shipment
	WID	
Worm identification	▮	3

Program Information
- Three images, each available as photographs and online images
- Two shipments per year

Virology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Guide for Ordering Regulated Virology Programs

Program Code	Procedure	
	Viral Identification	Viral Antigen Detection
VR1	▮	
VR2		▮
VR4		▮
HC4	▮	
ID3	▮	
ID5	▮	

Guide to Virology Testing

Use this flowchart as a guide for ordering the appropriate Virology programs for your laboratory's testing menu. For the subspecialty of virology, participants must test five specimens per mailing. If you have any questions, please call the Customer Contact Center at 800-323-4040 or 847-832-7000 option 1.

For Comprehensive Virology Culture Testing → Select **VR1** (page 199)

For Virology Antigen Testing by Immunofluorescence → Select **VR2** (page 199)

For Viral Serology Testing → Select **VR3, VR3M** (page 211)

For Virology Antigen by EIA or Latex Agglutination → Select **VR4** (page 199)

For Herpes Simplex Virus Culture Testing → Select **HC4** (page 200)

For Viral Load Testing → Select **HV2, HCV2, HBVL, HBVL5, VLS, VLS2** (pages 203-204)

For Nucleic Acid Amplification → Select **COV2, ID1, ID1T, ID2, ID5, VBDM** (pages 200-204)

Virology Culture VR1

Procedure	Program Code	Challenges per Shipment
	VR1	
Chlamydia trachomatis culture	▮	1
Viral isolation/identification	▮	5

Program Information

- Five 0.5-mL specimens for viral culture and one 0.5-mL specimen for *Chlamydia trachomatis* culture
- Three shipments per year

Virology Antigen Detection (DFA) VR2

Analyte/Procedure	Program Code	Challenges per Shipment		
	VR2	A	B	C
Adenovirus antigen	▮	1	1	
Cytomegalovirus antigen	▮	1	1	
Herpes simplex virus (HSV) antigen	▮		1	1
Influenza A antigen	▮	1		1
Influenza B antigen	▮		1	
Parainfluenza antigen	▮	1		1
Respiratory syncytial virus (RSV) antigen	▮	1		1
Varicella-zoster antigen	▮		1	1
Educational challenge	▮	1		

Program Information

- Five 5-well slide specimens
- Three shipments per year

Virology Antigen Detection (Non-DFA) VR4

Analyte	Program Code	Challenges per Shipment
	VR4	
Adenovirus (Not 40/41) antigen	▮	5
Influenza A antigen	▮	5
Influenza B antigen	▮	5
Respiratory syncytial virus (RSV) antigen	▮	5
Rotavirus antigen	▮	5

Program Information

- Five 1.5-mL specimens
- For use with enzyme immunoassay and/or latex agglutination methods
- Specimens not designed for molecular methods
- Three shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Herpes Simplex Virus HC4

Procedure	Program Code	Challenges per Shipment
	HC4	
Herpes simplex virus culture	▮	5

Program Information

- HC4 - Five 0.5-mL lyophilized specimens
- Three shipments per year

Human Papillomavirus HPV

Analyte	Program Code	Challenges per Shipment
	HPV	
Human papillomavirus	▮	2

For laboratories using Digene, SurePath, and/or ThinPrep collection media, see page 305.

Program Information

- Two simulated cervical specimens contained in Digene transport media
- For Digene Hybrid Capture only
- Two shipments per year

Nucleic Acid Amplification, Viruses ID1, ID1T

Analyte	Program Code		Challenges per Shipment
	ID1	ID1T	
Cytomegalovirus	▮		1
Enterovirus	▮		1
Epstein-Barr virus	▮		1
Herpes simplex virus	▮		1
Human herpesvirus 6	▮		1
Human herpesvirus 8	▮		1
Parvovirus B19	▮		1
Varicella-zoster virus	▮		1
BK virus		▮	1
JC virus		▮	1

Program Information

- ID1- Eight 1.0-mL liquid specimens
- ID1T - Two 1.0-mL liquid specimens
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

SARS-CoV-2 Molecular COV2

Analyte	Program Code	Challenges per Shipment
	COV2	
SARS-CoV-2	▮	3

For multiple instrument reporting options, see the Quality Cross Check program, COV2Q, on page below.

Program Information

- Three 1.5-mL liquid simulated respiratory specimens
- Designed for molecular techniques
- Whole genome with sequence targets across all the assay platforms
- Two shipments per year

Quality Cross Check—SARS-CoV-2 Molecular COV2Q

Analyte	Program Code	Challenges per Shipment
	COV2Q	
SARS-CoV-2	▮	3

This program does not meet regulatory requirements for proficiency testing; see program COV2, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 3.2-mL non-infectious liquid specimens that contain the whole SARS-CoV-2 genome
- Designed for molecular techniques
- Report up to three instruments
- Two shipments per year

SARS-CoV-2 Antigen COVAG

Analyte	Program Code	Challenges per Shipment
	COVAG	
SARS-CoV-2 antigen	▮	3

For multiple instrument reporting options, see the Quality Cross Check program, COVAQ, on page 202.

Program Information

- Three 0.5-mL simulated respiratory specimens
- Designed for antigen test
- Two shipments per year

Quality Cross Check—SARS-CoV-2 Antigen COVAQ

Analyte	Program Code	Challenges per Shipment
	COVAQ	
SARS-CoV-2 Antigen	▮	3

This program does not meet regulatory requirements for proficiency testing; see program COVAG on page 201. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 0.5-mL simulated respiratory specimens in triplicate
- Report up to three instruments
- Two shipments per year

SARS-CoV-2 Serology COVS

Analyte	Program Code	Challenges per Shipment
	COVS	
SARS-CoV-2 antibody (total, IgG, IgM, and IgA)	▮	3

For multiple instrument reporting options, see the Quality Cross Check program, COVSQ, on page 49.

Program Information

- Three 0.5-mL serum specimens
- Appropriate for assays that detect antibodies to nucleocapsid, spike, combined antigen (nucleocapsid and spike), and the receptor binding domain of the spike protein
- Two shipments per year

Nucleic Acid Amplification, Respiratory ID2

Analyte	Program Code	Challenges per Shipment
	ID2	
Adenovirus	▮	1
Coronavirus/Rhinovirus*	▮	1
Human metapneumovirus	▮	1
Influenza virus*	▮	1
Parainfluenza virus	▮	1
Respiratory syncytial virus (RSV)	▮	1

*Coronavirus/Rhinovirus and Influenza virus will be included in the following shipments:

- Shipment A: Coronavirus and Influenza A (does not include SARS-CoV-2)
- Shipment B: Rhinovirus and Influenza B

Program Information

- Six 1.0-mL liquid specimens
- Two shipments per year

Nucleic Acid Amplification, Respiratory Limited ID3

Analyte	Program Code	Challenges per Shipment
	ID3	
Influenza A virus	▮	5
Influenza B virus	▮	5
Respiratory syncytial virus (RSV)	▮	5
SARS-CoV-2	▮	5

Program Information
- Five 1.0-mL liquid specimens
- Designed for molecular multiplex panel users
- Three shipments per year

HSV, VZV—Molecular ID5

Analyte	Program Code	Challenges per Shipment
	ID5	
Herpes simplex virus	▮	5
Varicella-zoster virus	▮	5

Program Information
- Five 1.0-mL liquid specimens
- Designed for molecular techniques
- Three shipments per year

Hepatitis Viral Load HCV2, HBVL, HBVL5

Procedure	Challenges per Shipment		
	Program Code		
	HCV2	HBVL	HBVL5
HCV genotyping	1		
HCV, qualitative	1		
HCV viral load	5		
HBV viral load		3	5

Program Information
- HCV2 - Five 1.5-mL liquid plasma specimens; three shipments per year
- HBVL - Three 1.5-mL plasma specimens; two shipments per year
- HBVL5 - Five 1.5-mL plasma specimens; three shipments per year

HIV Viral Load HV2, HIVG

Procedure	Program Code		Challenges per Shipment
	HV2	HIVG	
HIV-RNA viral load	▮		5
HIV genotyping*		▮	1

*HIV genotyping is for laboratories reporting reverse transcriptase, protease, and/or integrase mutations.

Program Information
- HV2 - Five 2.5-mL liquid specimens
- HIVG - One 1.0-mL liquid specimen
- Three shipments per year

Viral Load VLS, VLS2

Procedure	Program Code		Challenges per Shipment
	VLS	VLS2	
BK viral load	▮	▮	2
CMV viral load	▮	▮	2
EBV viral load	▮	▮	2
Adenovirus viral load		▮	2
HHV6 viral load		▮	2

Program Information

- VLS - Six 1.0-mL EDTA plasma specimens; two shipments per year
- VLS2 - Ten 2.0-mL EDTA plasma specimens; three shipments per year

Viral Load Calibration Verification/Linearity LN38, LN39, LN45

Analyte	Program Code			
	LN38*	LN39	LN45	Target Ranges
CMV viral load	▮			316–1.0M IU/mL
HIV viral load		▮		50–5.0M IU/mL
HCV viral load			▮	50–280M IU/mL

*The biohazard warning applies to program LN38.

View your expedited linearity evaluations within two business days by logging into e-LAB Solutions Suite.

Program Information

- LN38 - Six 1.5-mL frozen plasma specimens
- Two shipments per year; ships on dry ice

- LN39 - Six 2.5-mL plasma specimens
- LN45 - Seven 2.5-mL frozen DNA specimens
- Two shipments per year; ships on dry ice (dry ice does not apply to LN39)

Vector-Borne Disease—Molecular VBDM

Analyte	Program Code	Challenges per Shipment
	VBDM	
Zika virus	▮	3

Program Information

- Three 1.5-mL liquid specimens
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Multidiscipline Microbiology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Guide for Ordering Regulated Molecular Multidiscipline Programs

Program Code	Procedure	
	Bacterial Identification	Viral Identification
IDR	▮	▮
GIP5	▮	▮
IDM5	▮	▮
IDPN	▮	▮

Nucleic Acid Amplification, Organisms IDO, IDN

Analyte/Procedure	Program Code		Challenges per Shipment
	IDO	IDN	
Bordetella pertussis/parapertussis	▮	▮	1
*Legionella pneumophila/Chlamydia pneumoniae**	▮	▮	1
Methicillin-resistant *Staphylococcus aureus*	▮	▮	1
Molecular typing (bacterial isolates)	▮	▮	1
Mycobacterium tuberculosis	▮		1
Mycoplasma pneumoniae	▮	▮	1
Vancomycin-resistant *Enterococcus*	▮	▮	1

**Legionella pneumophila/Chlamydia pneumoniae* will be included in the following shipments:

- Shipment A: *Chlamydia pneumoniae*
- Shipment B: *Legionella pneumophila*

Program Information

- IDO - Seven liquid or swab simulated clinical isolate specimens and two diluents
- IDN - Six liquid or swab simulated clinical isolate specimens and two diluents; designed for international laboratories that cannot receive MTB
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Joint Infection Panel JIP

NEW

Analyte	Program Code	Challenges per Shipment
	JIP	
Anaerococcus prevotii/vaginalis	▮	5
Bacteroides fragilis	▮	5
Candida albicans	▮	5
Citrobacter	▮	5
Cutibacterium avidum/granulosum	▮	5
Enterobacter cloacae complex	▮	5
Enterococcus faecalis	▮	5
Enterococcus faecium	▮	5
Escherichia coli	▮	5
Finegoldia magna	▮	5
Haemophilus influenzae	▮	5
Kingella kingae	▮	5
Klebsiella aerogenes	▮	5
Klebsiella pneumoniae group	▮	5
Morganella morganii	▮	5
Neisseria gonorrhoeae	▮	5
Parvimonas micra	▮	5
Peptoniphilus	▮	5
Peptostreptococcus anaerobius	▮	5
Proteus spp.	▮	5
Pseudomonas aeruginosa	▮	5
Salmonella spp.	▮	5
Serratia marcescens	▮	5
Staphylococcus aureus	▮	5
Staphylococcus lugdunensis	▮	5
Streptococcus agalactiae	▮	5
Streptococcus pneumoniae	▮	5
Streptococcus pyogenes	▮	5

Program Information

- Five 0.5-mL liquid specimens
- Designed for molecular multiplex panel users
- Program challenges may contain the following antimicrobial resistance genes on a rotational basis: CTX-M, IMP, KPC, *mecA/C* and MREJ, NDM, OXA-48-like, *vanA/B*, and VIM
- Three shipments per year

Meningitis/Encephalitis Panel IDM5, IDME

Analyte	Challenges per Shipment	
	Program Code	
	IDM5	IDME
***Escherichia coli* K1**	5	3
Haemophilus influenzae	5	3
Listeria monocytogenes	5	3
Neisseria meningitidis	5	3
Streptococcus agalactiae	5	3
Streptococcus pneumoniae	5	3
Cytomegalovirus (CMV)	5	3
Enterovirus	5	3
Herpes simplex virus 1 (HSV-1)	5	3
Herpes simplex virus 2 (HSV-2)	5	3
Human herpesvirus 6 (HHV-6)	5	3
Human parechovirus	5	3
Varicella-zoster virus (VZV)	5	3
Cryptococcus neoformans/gattii	5	3

Note: Only IDM5 analytes in **bold** type will meet CMS requirements for bacteriology and virology identification. For programs that include more than one sub-specialty of microbiology, per CLIA, your laboratory is required to test five specimens, three times a year, for each sub-specialty your laboratory performs.

Program Information

- IDM5 - Five 1.0-mL liquid specimens; three shipments per year
- IDME - Three 1.0-mL liquid specimens; two shipments per year
- Designed for molecular multiplex panel users

Infectious Disease, Respiratory Panel IDR		
Analyte	**Program Code**	**Challenges per Shipment**
	IDR	
Adenovirus	▮	5
Bocavirus	▮	5
Bordetella (pertussis, parapertussis, bronchiseptica, holmesii)	▮	5
Chlamydia pneumoniae	▮	5
Coronavirus	▮	5
Human metapneumovirus	▮	5
Influenza A	▮	5
Influenza B	▮	5
Legionella pneumophila	▮	5
Mycoplasma pneumoniae	▮	5
Parainfluenza type 1, 2, 3	▮	5
Parainfluenza type 4	▮	5
Respiratory syncytial virus (RSV)	▮	5
Rhinovirus/Enterovirus	▮	5
SARS-CoV-2	▮	5

For programs that include more than one sub-specialty of microbiology, per CLIA, your laboratory is required to test five specimens, three times a year, for each sub-specialty your laboratory performs.

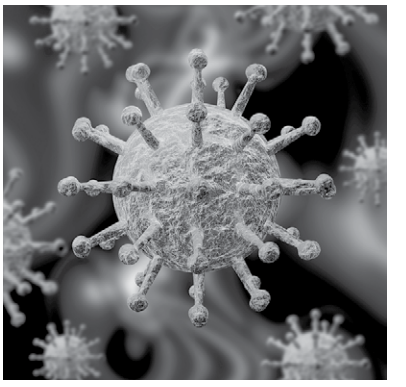
Program Information

- Five 1.0-mL liquid specimens
- Designed for molecular multiplex panel users
- Three shipments per year

Supporting you with a comprehensive family of PT and quality improvement programs for SARS-CoV-2.

As laboratories keep up with the latest advancements in SARS-CoV-2 testing, we have continued to anticipate your needs.

- Assess your entire workflow from nucleic acid extraction through detection with SARS-CoV-2 Molecular (COV2).
- Evaluate the accuracy of antibody testing with SARS-CoV-2 Serology (COVS)—report results for qualitative and quantitative methods for total, IgG, IgM, and IgA antibodies.
- Assess the accuracy of your laboratory's rapid/point of care antigen tests with SARS-CoV-2 Antigen (COVAG).



See pages 201-202. Add COV2, COVS, and COVAG to your order.

For related Quality Cross Check programs, see pages 201-202.

Infectious Disease, Pneumonia Panel IDPN

Analyte	Program Code	Challenges per Shipment
	IDPN	
Acinetobacter calcoaceticus-baumannii complex	▮	5
Adenovirus	▮	5
Coronavirus*	▮	5
Chlamydia pneumoniae	▮	5
Enterobacter cloacae **complex**	▮	5
Escherichia coli	▮	5
Haemophilus influenzae	▮	5
Human metapneumovirus	▮	5
Rhinovirus/Enterovirus	▮	5
Influenza A	▮	5
Influenza B	▮	5
Klebsiella aerogenes	▮	5
Klebsiella oxytoca	▮	5
Klebsiella pneumoniae **group**	▮	5
Legionella pneumophila	▮	5
Moraxella catarrhalis	▮	5
Mycoplasma pneumoniae	▮	5
Parainfluenza virus	▮	5
Proteus **spp.**	▮	5
Pseudomonas aeruginosa	▮	5
Respiratory syncytial virus (RSV)	▮	5
Serratia marcescens	▮	5
Staphylococcus aureus	▮	5
Streptococcus agalactiae	▮	5
Streptococcus pneumoniae	▮	5
Streptococcus pyogenes	▮	5

*Laboratories performing SARS-CoV-2 testing, see the COV2 program on page 201.

Includes antimicrobial resistance genes, as appropriate. For programs that include more than one sub-specialty of microbiology, per CLIA, your laboratory is required to test five specimens, three times a year, for each sub-specialty your laboratory performs.

Program Information

- Five 1.0-mL liquid specimens
- Designed for molecular multiplex panel users
- Three shipments per year

Gastrointestinal Panel GIP5, GIP

Analyte	Challenges per Shipment	
	Program Code	
	GIP5	GIP
Adenovirus	5	3
Astrovirus	5	3
Campylobacter	5	3
Clostridioides (Clostridium) difficile, toxin A/B	5	3
Cryptosporidium	5	3
Cyclospora cayetanensis	5	3
Entamoeba histolytica	5	3
Enteroaggregative *E. coli* (EAEC)	5	3
Enteropathogenic *E. coli* (EPEC)	5	3
Enterotoxigenic *E. coli* (ETEC) LT/ST	5	3
***Escherichia coli* O157**	5	3
Giardia duodenalis (lamblia)	5	3
Norovirus GI/GII	5	3
Plesiomonas shigelloides	5	3
Rotavirus A	5	3
Salmonella	5	3
Sapovirus	5	3
Shiga-like toxin producing *E. coli* (STEC) *stx1/stx2*	5	3
***Shigella*/Enteroinvasive *E. coli* (EIEC)**	5	3
Shigella	5	3
Vibrio cholerae	5	3
Yersinia enterocolitica	5	3

Note: Only GIP5 analytes in **bold** type will meet CMS requirements for bacteriology and virology identification. For programs that include more than one sub-specialty of microbiology, per CLIA, your laboratory is required to test five specimens, three times a year, for each sub-specialty your laboratory performs.

Program Information

- GIP5 - Five 1.0-mL simulated stool specimens; three shipments per year
- GIP - Three 1.0-mL simulated stool specimens; two shipments per year
- Designed for molecular multiplex panel users
- Not available to international customers due to United States export law restrictions

Infectious Disease Serology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Infectious Disease Serology VR3, VR3M

Analyte	Program Code		Challenges per Shipment
	VR3	VR3M	
Cytomegalovirus (CMV) – IgG, IgM, and total antibodies	▮		1
Epstein-Barr virus (EBV) – VCA – IgG, IgM EBNA – IgG, IgM, and total antibodies EA – IgG	▮		1
Helicobacter pylori – IgG, IgA, and total antibodies	▮		1
Herpes simplex virus (HSV) – IgG antibody	▮		1
Mycoplasma pneumoniae – IgG, IgM, and total antibodies	▮		1
Mumps – IgG		▮	1
Rubeola virus (English measles) – IgG antibody	▮		1
Toxoplasma gondii – IgG, IgM, and total antibodies	▮		1
Varicella-zoster virus – IgG and total antibodies	▮		1

Program Information

- VR3 - Eight 0.5-mL lyophilized defibrinated plasma specimens
- VR3M - One 0.5-mL lyophilized defibrinated plasma specimen
- Two shipments per year

Tick-Transmitted Diseases TTD

Analyte	Program Code	Challenges per Shipment
	TTD	
Antibodies to tick-transmitted disease organisms	▮	3

Program Information

- Three 0.4-mL liquid specimens
- Designed for the detection of antibodies to *Borrelia burgdorferi*, *Babesia microti*, and *Anaplasma phagocytophilum*
- Two shipments per year

Parasitology Benchtop Reference Guide (PBRG)

- More than 70 identifications for parasites commonly encountered in the clinical laboratory
- Detailed descriptions of the parasite morphology, ecology, and clinical significance
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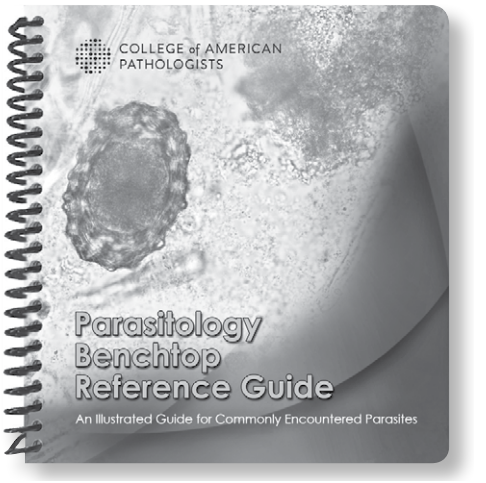

Item number: PBRG
Spiral bound; 98 pages;
70+ images and tables; 2014

16 Immunology and Flow Cytometry

Testing in immunology and flow cytometry continues to grow. We continue to develop new programs to support your laboratory.

- Serologic testing for SARS-C0V-2 (COVS).
- Rare flow antigen validation for CD30 expression (RFAV3).
- Flow analysis of T-cell subsets (FL7).
- Flow cytometry testing for minimal residual disease in mature B cell leukemia/lymphoma (FL8) and plasma cell myeloma (FL9).

Immunology and Flow Cytometry

Immunology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Immunology
ANA, ASO, CRP, HCG, IM, RF/RFX, RUB/RUBX, IL

Analyte	Program Code								Challenges per Shipment
	ANA	ASO	CRP	HCG	IM	RF/ RFX	RUB/ RUBX	IL	
Antinuclear antibody (ANA)*	▮							▮	5
ANA dry challenge	▮							▮	1
Antistreptolysin O (ASO)*		▮						▮	5
C-reactive protein, qualitative/quantitative			▮					▮	2
hCG, serum, qualitative/ quantitative				▮				▮	5
Infectious mononucleosis					▮			▮	5
Rheumatoid factor*						▮		▮	5
Rubella (IgG)*							▮	▮	5

***ANA, ASO, Rheumatoid factor,** and **Rubella** are regulated analytes and are graded for both qualitative and quantitative methods. **Only** qualitative results will be reported to CMS. Semiquantitative and/or titer results for these analytes are ungraded/educational in these programs and do not meet regulatory requirements.

Program Information

- ANA, RUB - Five 0.5-mL serum specimens
- ANA - Three online educational pattern interpretation challenges per year
- ASO, HCG, RF - Five 1.0-mL serum specimens
- CRP - Two 0.5-mL serum specimens; not appropriate for high-sensitivity CRP (hsCRP) methods
- IM - Five 0.6-mL serum specimens
- RFX - All program RF specimens in duplicate
- RUBX - All program RUB specimens in duplicate
- IL - All immunology specimens except RFX and RUBX
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

Immunology, General IG/IGX

Analyte	Program Code	Challenges per Shipment
	IG/IGX	
Alpha-1 antitrypsin	▮	5
Complement C3	▮	5
Complement C4	▮	5
Haptoglobin	▮	5
IgA	▮	5
IgE	▮	5
IgG	▮	5
IgM	▮	5
Total kappa/lambda ratio	▮	5

Program Information

- IG - Ten 1.0-mL serum specimens
- IGX - All program IG specimens in duplicate
- Conventional and International System of Units (SI) reporting offered
- Three shipments per year

Immunology, Special; Immunology Special, Limited; and *H. pylori* IgG Antibody S2, S4, S5

Analyte	Program Code			Challenges per Shipment		
	S2	S4	S5	A	B	C
Anticentromere antibody	▮			1		1
Anti-DNA antibody double-stranded	▮	▮		1	1	1
Antiglomerular basement membrane (GBM), IgG antibody	▮				1	1
Antimitochondrial antibody	▮			1	1	1
Antineutrophil cytoplasmic antibody (ANCA, anti-MPO, anti-PR3)	▮			1	1	
Anti-RNP antibody	▮			1	1	1
Anti-Ro52 antibody	▮			1	1	1
Anti-Ro60 antibody	▮			1	1	1
Anti-Sm antibody	▮			1	1	1
Anti-Sm/RNP antibody	▮			1	1	1
Antismooth muscle antibody	▮			1	1	1
Anti-SSA antibody	▮			1	1	1
Anti-SSB antibody	▮			1	1	1
Anti-SSA/SSB antibody	▮			1	1	1
Antithyroglobulin antibody	▮	▮		1	1	1
Antithyroid microsomal antibody	▮	▮		1	1	1
Antithyroid peroxidase antibody	▮	▮		1	1	1
Ceruloplasmin	▮	▮		1	1	1
Haptoglobin	▮	▮		1	1	1
Helicobacter pylori, IgG antibody	▮	▮	▮	1 2	1 2	
IgD	▮	▮		1	1	1
IgG	▮	▮		1	1	1
IgG subclass proteins	▮	▮		1	1	1
Prealbumin (transthyretin)	▮	▮		1	1	1
Total kappa/lambda ratio	▮	▮		1	1	1
Transferrin	▮	▮		1	1	1

Program S2 is not appropriate for antimitochondrial antibody assays that are specific for the M2 antibody. Refer to program H on page 216.

Program Information

- S2 - A minimum of eight (0.5- to 1.0-mL) serum specimens
- S4 - A minimum of three (0.5- to 1.0-mL) serum specimens
- S2, S4 - Three shipments per year
- S5 - Two 1.0-mL serum specimens; two shipments per year

CE credit

Infectious Mononucleosis, Waived IMW

Analyte	Program Code	Challenges per Shipment
	IMW	
Infectious mononucleosis, waived	▮	3

Program Information

- Three 0.6-mL serum specimens
- Two shipments per year

Alpha-2-Macroglobulin A2MG

Analyte	Program Code	Challenges per Shipment
	A2MG	
Alpha-2-macroglobulin	▮	3

Program Information
- Three 0.5-mL serum specimens
- Two shipments per year

Antichromatin Antibody ACA

Analyte	Program Code	Challenges per Shipment
	ACA	
Antichromatin antibody	▮	3

Program Information
- Three 0.5-mL serum specimens
- Two shipments per year

Antifilamentous Actin IgG Antibody FCN

Analyte	Program Code	Challenges per Shipment
	FCN	
Antifilamentous actin (f-actin) IgG antibody	▮	3

Program Information
- Three 0.5-mL serum specimens
- Two shipments per year

Antihistone Antibody AHT

Analyte	Program Code	Challenges per Shipment
	AHT	
Antihistone antibody	▮	3

Program Information
- Three 0.5-mL serum specimens
- Two shipments per year

CE credit

Antimitochondrial M2 Antibody H

Analyte	Program Code	Challenges per Shipment
	H	
Antimitochondrial M2 antibody (AMA-M2)	▮	2

Program Information
- Two 1.0-mL serum specimens
- Two shipments per year

Autoimmune Gastritis Markers APC

Analyte	Program Code	Challenges per Shipment
	APC	
Antiparietal cell antibody	▮	2
Anti-intrinsic factor antibody	▮	2

Program Information
- Two 1.0-mL serum specimens
- Two shipments per year

Antiphospholipid Antibody ACL

Analyte	Program Code	Challenges per Shipment
	ACL	
Anticardiolipin antibody (polyclonal, IgG, IgM, and IgA)	▮	3
Beta-2-glycoprotein I (polyclonal, IgG, IgM, and IgA)	▮	3

Program Information
- Three 0.5-mL lyophilized serum specimens
- Two shipments per year

Antiphosphatidylserine Antibody APS

Analyte	Program Code	Challenges per Shipment
	APS	
Anticardiolipin antibody (polyclonal, IgG, IgM, and IgA)	▮	3
Antiphosphatidylserine antibody (IgG, IgM, and IgA)	▮	3
Beta-2-glycoprotein I (polyclonal, IgG, IgM, and IgA)	▮	3
Antiphosphatidylserine/prothrombin antibody (aPS/PT)	▮	3

Program Information
- Three 0.5-mL lyophilized serum specimens
- Two shipments per year

Antiribosomal P Antibody ARP

Analyte	Program Code	Challenges per Shipment
	ARP	
Antiribosomal P antibody	▮	3

Program Information
- Three 0.5-mL serum specimens
- Two shipments per year

Anti-*Saccharomyces cerevisiae* Antibody ASC

Analyte	Program Code	Challenges per Shipment
	ASC	
Anti-*Saccharomyces cerevisiae* antibody (IgG and IgA)	▮	2

Program Information
- Two 1.0-mL serum specimens
- Two shipments per year

Celiac Serology CES, CESX

Analyte	Program Code		Challenges per Shipment
	CES	CESX	
Antiendomysial antibody (IgA and IgG)	▮	▮	3
Antiendomysial antibody screen (IgA and IgG)	▮	▮	3
Antigliadin antibody (IgA and IgG)	▮	▮	3
Antideamidated gliadin peptide (DGP) antibody (IgA and IgG)	▮	▮	3
Anti-DGP antibody screen (IgA and IgG)	▮	▮	3
Antitissue transglutaminase (tTG) antibody (IgA and IgG)	▮	▮	3
Anti-DGP and anti-tTG antibody screen (IgA and IgG)	▮	▮	3

Program Information

- CES - Three 0.3-mL serum specimens
- CESX - All program CES specimens in triplicate
- Two shipments per year

Cyclic Citrullinated Peptide Antibody (Anti-CCP) CCP

Analyte	Program Code	Challenges per Shipment
	CCP	
Anti-CCP	▮	2
Rheumatoid factor isotypes (IgA, IgM, and IgG)	▮	2

Program Information

- Two 1.0-mL serum specimens
- Two shipments per year

CE credit

Cytokines CTKN

Analyte	Program Code	Challenges per Shipment
	CTKN	
Interferon (IFN)-gamma	▮	3
Interleukin (IL)-1 beta	▮	3
IL-2	▮	3
IL-6	▮	3
IL-8	▮	3
IL-10	▮	3
Tumor necrosis factor (TNF)-alpha	▮	3
Vascular endothelial growth factor (VEGF)	▮	3

Program Information

- Twelve 1.0- to 3.0-mL lyophilized serum specimens
- Two shipments per year

Diagnostic Allergy SE

Analyte/Procedure	Program Code	Challenges per Shipment
	SE	
IgE, multiallergen screen, qualitative	▮	5
IgE, total	▮	5
Specific allergens	▮	25

Program Information
- Five 2.0-mL serum specimens
- Includes common allergens from North America as well as less frequently tested allergens
- Three shipments per year

High-Sensitivity C-Reactive Protein HSCRP

Analyte	Program Code	Challenges per Shipment
	HSCRP	
High-sensitivity C-reactive protein	▮	3

Program Information
- Three 0.5-mL liquid serum specimens
- Two shipments per year

Liver-Kidney Microsomal Antibody (Anti-LKM) LKM

Analyte	Program Code	Challenges per Shipment
	LKM	
Anti-LKM	▮	2

Program Information
- Two 1.0-mL serum specimens
- Two shipments per year

M. tuberculosis-Stimulated Infection Detection QF

Analyte	Program Code	Challenges per Shipment
	QF	
M. tuberculosis	▮	2

This program is appropriate for the QIAGEN QuantiFERON®-TB Gold and Gold Plus, DiaSorin Liaison QuantiFERON-TB Gold Plus, and SD Biosensor Standard methods.

Program Information
- Two 1.0-mL lyophilized serum specimens and one lyophilized mitogen control
- Two shipments per year

Rheumatic Disease Special Serologies RDS

Analyte	Program Code	Challenges per Shipment
	RDS	
Anti-Jo-1 (antihistidyl t-RNA synthetase)	▮	1
Anti-Scl-70 (anti-DNA topoisomerase)	▮	1

Program Information
- Two 1.0-mL serum specimens
- Two shipments per year

CE credit

SARS-CoV-2 Serology COVS

Analyte	Program Code	Challenges per Shipment
	COVS	
SARS-CoV-2 antibody (total, IgG, IgM, and IgA)	▮	3

For multiple instrument reporting options, see the Quality Cross Check program, COVSQ, below.

Program Information

- Three 0.5-mL serum specimens
- Appropriate for assays that detect antibodies to nucleocapsid, spike, combined antigen (nucleocapsid and spike), and the receptor binding domain of the spike protein
- Two shipments per year

Quality Cross Check—SARS-CoV-2 Serology COVSQ

Analyte	Program Code	Challenges per Shipment
	COVSQ	
SARS-CoV-2 antibodies (Total, IgG, IgM)	▮	3

This program does not meet regulatory requirements for proficiency testing; see program COVS, above. For additional information about the Quality Cross Check program, see page 40.

The Quality Cross Check Program:

- Provides a solution for monitoring performance across multiple instruments and is in compliance with the CMS directive regarding proficiency testing on multiple instruments.
- Simplifies instrument comparability efforts by providing custom reports with both peer group comparison and instrument comparability statistics.

Program Information

- Three 1.0-mL serum specimens
- Report up to three instruments
- Two shipments per year

Syphilis Serology G

Analyte	Program Code	Challenges per Shipment
	G	
Syphilis	▮	5

Use with VDRL, RPR, MHA-TP/TP-PA/PK-TP/TPHA, EIA, CMIA, multiplex flow immunoassay, TP-LIA IgG, FTA-ABS, and USR methods. Laboratories performing syphilis serology on CSF specimens may also use this program.

Program Information

- Five 1.5-mL serum specimens
- Three shipments per year

CE credit

Total Hemolytic Complement CH50

Analyte	Program Code	Challenges per Shipment
	CH50	
Total hemolytic complement, 50% lysis	▮	2
Total hemolytic complement, 100% lysis	▮	2

Program Information

- Two 0.5-mL lyophilized serum specimens
- Two shipments per year

Viscosity V

Analyte	Program Code	Challenges per Shipment
	V	
Viscosity	▮	2

Program Information
- Two 10.0-mL serum specimens
- Two shipments per year

Serum Free Light Chains SFLC

Analyte	Program Code	Challenges per Shipment
	SFLC	
Kappa serum free light chain	▮	3
Lambda serum free light chain	▮	3
Kappa/lambda serum free light chain ratio and ratio interpretation	▮	3

Program Information
- Three 1.0-mL serum specimens
- Two shipments per year

Rely on this reference for a rapidly growing field.

Flow Cytometry in Evaluation of Hematopoietic Neoplasms: A Case-Based Approach is a practical guide to flow cytometric analysis in the workup of hematopoietic neoplasms presenting in the peripheral blood, marrow, lymphoid tissue, and extranodal sites. This text provides pathologists, residents, laboratory technologists, and hematologists with both a study guide and an atlas for regular consultation in the clinical flow cytometry laboratory.

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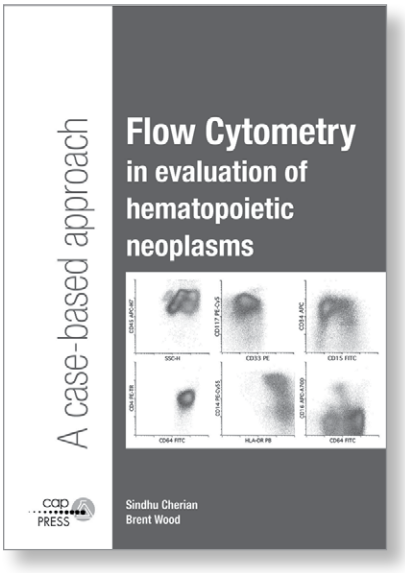

Item number: PUB221
Hardcover; 90+ figures comprising hundreds of dot plots; 176 pages; 2012

Flow Cytometry

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Flow Cytometry FL, FL1, FL2

Procedure	Program Code			Challenges per Shipment
	FL	FL1	FL2	
DNA content and cell cycle analysis	▮		▮	3
Lymphocyte immunophenotyping	▮	▮		3

These programs are not appropriate for hematology analyzers with monoclonal antibody analysis.

Program Information

- FL1 - Three 1.5-mL whole blood specimens
- FL2 - Three 1.1-mL specimens; two fixed cell line specimens and one calibrator for DNA content and cell cycle analysis
- FL - All program FL1 and FL2 specimens
- Three shipments per year

Flow Cytometry—Immunophenotypic Characterization of Leukemia/Lymphoma FL3

Procedure	Program Code	Challenges per Shipment
	FL3	
Leukemia/lymphoma	▮	2

Additional Information

- Program FL3 is appropriate for laboratories that perform technical component-only flow cytometry testing.
- This program has stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

Program Information

- Two 1.1-mL specimens containing a cell line/whole blood mixture simulating leukemia/lymphoma; online images of tissue sections, bone marrow, and/or peripheral blood smears with clinical histories as clinically relevant and/or available
- Online, whole slide images powered by DigitalScope® technology (if applicable)
- Two shipments per year

Flow Cytometry, CD34+ FL4

Analyte	Program Code	Challenges per Shipment
	FL4	
CD34+	▮	2

Program Information

- Two 1.5-mL stabilized human CD34+ specimens
- Two shipments per year

Flow Cytometry, Interpretation Only FL5

Procedure	Program Code	Challenges per Shipment
	FL5	
Flow cytometry, interpretation only of leukemia/lymphoma	▮	3

Program FL5 is for laboratories that receive flow cytometry analyses from referring laboratories to perform the interpretation of patient results.

Program Information

- Three online cases consisting of gated dot plots, clinical histories, and pertinent laboratory data, as well as images of tissue sections, bone marrow, and/or peripheral blood smears as clinically relevant and/or available
- Online, whole slide images powered by DigitalScope technology (if applicable)
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Flow Cytometry—Post-Immunotherapy Analysis FL6

Procedure	Program Code	Challenges per Shipment
	FL6	
Post-immunotherapy flow cytometry analysis	▮	3

Program FL6 is appropriate for laboratories that perform flow cytometry analysis on samples from patients treated with chimeric antigen receptor (CAR) T-cell or other immunotherapy regimens that cause immunophenotypic changes to normal and/or neoplastic cells.

Program Information

- Three online cases consisting of gated dot plots, clinical histories, and pertinent laboratory data, as well as images of tissue sections, bone marrow, and/or peripheral blood smears as clinically relevant and/or available
- Online, whole slide images powered by DigitalScope technology (if applicable)
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Flow Cytometry—T-Cell Subsets Analysis FL7

Procedure	Program Code	Challenges per Shipment
	FL7	
T-cell subsets analysis	▮	2

Program is appropriate for labs that perform T-cell subset analysis for immunodeficiency and immune dysregulation. Reporting will include percentages and absolute counts for naïve and memory T cells, recent thymic emigrants, TCR alpha/beta and TCR gamma/delta T cells, and double negative (TCRalpha/beta+CD3+CD4-CD8-) T cells. Participants may include information on additional markers used in their panel to assess memory T-cell subsets.

Program Information

- Two 3.0-mL whole blood specimens
- Two shipments per year

Flow Cytometry—B-ALL Minimal Residual Disease BALL

Analyte	Program Code	Challenges per Shipment
	BALL	
B-ALL minimal residual disease	▮	3

Additional Information

- Program BALL is intended for laboratories that currently or will begin to perform minimal residual disease (MRD) testing (rare event analysis) for B lymphoblastic leukemia/lymphoma. The cases presented will be a mixture of Children's Oncology Group (COG) approved B-ALL MRD method and laboratory developed assays.
- This program has stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

Program Information

- Two 1.1-mL specimens containing a cell line/whole blood mixture simulating B lymphoblastic leukemia/lymphoma minimal residual disease
- One online case consisting of gated dot plots
- Two shipments per year

Flow Cytometry—Mature B-Cell Leukemia/Lymphoma Minimal Residual Disease FL8

Procedure	Program Code	Challenges per Shipment
	FL8	
Mature B-cell leukemia/lymphoma minimal residual disease	▮	3

Additional Information

- Program FL8 is intended for laboratories that currently or will begin to perform minimal residual disease (MRD) testing (rare event analysis) for mature B-cell leukemia/lymphoma.
- This program has stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

Program Information

- Two 1.1-mL specimens containing a cell line/whole blood mixture simulating mature B-cell leukemia/lymphoma minimal residual disease with clinical history and pertinent laboratory data
- One online case with clinical history and gated dot plots
- Two shipments per year

Flow Cytometry—Plasma Cell Myeloma Minimal Residual Disease FL9

Procedure	Program Code	Challenges per Shipment
	FL9	
Plasma cell myeloma minimal residual disease	▮	3

Additional Information

- Program FL9 is intended for laboratories that currently or will begin to perform minimal residual disease (MRD) testing (rare event analysis) for plasma cell myeloma.
- This program has stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

Program Information

- Two 4.5-mL specimens containing a cell line/whole blood mixture simulating plasma cell myeloma minimal residual disease with clinical history and pertinent laboratory data
- One online case with clinical history and gated dot plots
- Two shipments per year

Flow Cytometry—Plasma Cell Neoplasms PCNEO

Analyte	Program Code	Challenges per Shipment
	PCNEO	
Plasma cell neoplasms	▮	3

Additional Information

- Program PCNEO is especially helpful for laboratories that have leukemia/lymphoma assays that target plasma cell neoplasms, including cytoplasmic light chain staining.
- This program has stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

Program Information

- One 1.1-mL specimen containing a cell line/whole blood mixture, simulating a plasma cell neoplasm with clinical history and pertinent laboratory data
- Two online cases consisting of gated dot plots, clinical histories, and pertinent laboratory data
- Each challenge includes online images of tissue sections, bone marrow, and/or peripheral blood smears as clinically relevant and/or available
- Online, whole slide images powered by DigitalScope technology (if applicable)
- Two shipments per year

Flow Cytometry—Immunophenotypic Characterization of Paroxysmal Nocturnal Hemoglobinuria PNH

Analyte	Program Code	Challenges per Shipment
	PNH	
PNH RBC analysis	▮	2
PNH WBC analysis	▮	2

Additional Information

- The PNH program complies with the recommendations from the *Guidelines for the Diagnosis and Monitoring of Paroxysmal Nocturnal Hemoglobinuria and Related Disorders by Flow Cytometry* for RBC and WBC analysis. Due to the unique nature of these human, donor-based materials, the shipping dates are subject to change. If this should occur, the CAP will provide notification prior to the originally scheduled shipping date.
- This program is appropriate for high-sensitivity testing (≤0.01% PNH type clone in red cells and/or granulocytes).

Program Information

- Two 0.5-mL whole blood specimens for RBC and WBC analysis
- Two shipments per year

Fetal Red Cell Detection HBF

Procedure	Program Code	Challenges per Shipment
	HBF	
Kleihauer-Betke and flow cytometry	▮	2
Rosette fetal screen	▮	2
Acid elution whole slide image	▮	1

Program Information

- Two 1.2-mL liquid whole blood specimens
- Not designed for F cell quantitation
- Two online, whole slide images per year with optional grids for cell counting
- Powered by DigitalScope technology
- Two shipments per year

Rare Flow Antigen Validation RFAV1, RFAV2, RFAV3

Analyte	Program Code			Challenges per Shipment
	RFAV1	RFAV2	RFAV3	
CD1a	▮			1
CD103		▮		1
CD30			▮	1

Program Information

- RFAV1 - One 1.1-mL cell line specimen
- RFAV2 - One 1.0-mL stabilized cell specimen
- RFAV3 - One 1.1-mL cell line specimen
- Two shipments per year

Additional Information

- Programs RFAV1, RFAV2, and RFAV3 do not meet the regulatory requirements for proficiency testing.
- These programs meet the CAP Accreditation Checklist item FLO.23737, which requires semiannual testing of antigens.
- RFAV1 and RFAV3 have stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

ZAP-70/CD49d Analysis by Flow Cytometry ZAP70

Analyte	Program Code	Challenges per Shipment
	ZAP70	
Zeta chain-associated protein kinase 70	▮	3
CD49d	▮	3

Program Information

- Three 1.1-mL cell line specimens
- Two shipments per year

Additional Information

- This program tests for intracellular ZAP-70 staining of a cell line. It allows for assessment of the laboratory's staining techniques and the antibody clone used for ZAP-70 detection.
- CD49d is an important prognostic marker for CLL by flow cytometry. This program allows assessment of the laboratory's ability to detect CD49d.
- This program has stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.

17 Transfusion Medicine, Viral Markers, and Parentage Testing

Confirm all your instruments are in working order.

Monitor performance and assess comparability across multiple instruments in your laboratory with Quality Cross Check.

- Gain an early indication of instrument problems.
- Assess comparability across multiple automated and manual methods with the new Quality Cross Check—Transfusion Medicine program (JATQ).

Transfusion Medicine, Viral Markers, and Parentage Testing

New Analyte Additions NEW

Transfusion Medicine

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Transfusion Medicine J, J1

Procedure	Program Code		Challenges per Shipment
	J	J1	
ABO grouping	▮	▮	5
Rh typing	▮	▮	5
Antibody detection	▮		5
Antibody identification	▮		5
Compatibility testing	▮		5
Red blood cell antigen typing	▮		1

Program Information

- J - Five 3.0-mL 3% red blood cell suspensions; five 3.0-mL corresponding serum specimens; one 3.0-mL donor red blood cell suspension
- J1 - Five 3.0-mL 3% red blood cell suspensions; five 3.0-mL corresponding serum specimens
- Three shipments per year

CE credit

Transfusion Medicine—Educational Challenge JE1

Procedure	Program Code	Challenges per Shipment
	JE1	
Educational challenge	▮	1

Program Information

- One educational challenge, which may consist of a paper challenge and/or wet specimen for ABO grouping, Rh typing, antibody detection, antibody identification, compatibility testing, antigen typing, and/or direct antiglobulin testing
- Must order in conjunction with program J
- Three shipments per year

CE credit

Electronic Crossmatch EXM

Procedure	Program Code	Challenges per Shipment
	EXM	
Electronic crossmatch	▮	3

Program EXM assists laboratories in monitoring the performance of their electronic crossmatching system.

Program Information

- Three simulated, ISBT-128 labeled donor unit challenges and three corresponding red blood cell suspensions
- Must order in conjunction with program J
- Three shipments per year

CE credit

Transfusion Medicine—Automated JAT

Procedure	Program Code	Challenges per Shipment
	JAT	
ABO grouping	▮	5
Antibody detection	▮	5
Antibody identification	▮	5
Compatibility testing	▮	5
Rh typing	▮	5

For multiple instrument reporting options, see the Quality Cross Check program, JATQ, on page 230.

Program Information

- Five bar-coded 4.0-mL 18%–22% whole blood specimens and one 4.0-mL 18%–22% whole blood specimen for compatibility testing
- Three shipments per year

CE credit

Transfusion Medicine—Automated Educational Challenge JATE1

Procedure	Program Code	Challenges per Shipment
	JATE1	
Educational challenge	▮	1

Program Information

- One educational challenge, which may consist of a paper challenge and/or wet specimen for ABO grouping, Rh typing, antibody detection, antibody identification, and/or compatibility testing
- Must order in conjunction with program JAT
- Three shipments per year

CE credit

Quality Cross Check—Transfusion Medicine JATQ

Procedure	Program Code	Challenges per Shipment
	JATQ	
ABO grouping	▮	3
Antibody detection	▮	3
Rh typing	▮	3

This program does not meet regulatory requirements for proficiency testing; see program JAT on page 229. For additional information about the Quality Cross Check program, see page 40.

Program Information

- Three 6.0-mL 13% -17% whole blood specimens
- May be used with automated and manual procedures
- Two shipments per year

Electronic Crossmatch—Automated EXM2

Procedure	Program Code	Challenges per Shipment
	EXM2	
Electronic crossmatch	▮	3

Program EXM2 assists laboratories in monitoring the performance of their electronic crossmatching system.

Program Information

- Three simulated, ISBT-128 labeled donor unit challenges and three corresponding red blood cell suspensions
- Must order in conjunction with program JAT
- Three shipments per year

CE credit

In-Date Blood Product Wastage QT4

Blood for transfusion is a precious resource. At a minimum, wastage of blood that is not out-of-date represents a financial loss to the health care system. More ominously, systemic wastage of blood may reflect an environment of care that is out of control and may pose risks to patient safety.

Enrollment in this program assists laboratories in meeting regulatory requirements as follows:

- CAP Laboratory Accreditation Program Checklist statements: TRM.40875 that requires the transfusion service medical director to monitor and audit transfusion practices to ensure the appropriate use of blood; TRM.30800, Disposition Records; and TRM.32275, Component Records, regarding recording the use of each blood or component product from receipt to final disposition.
- The Joint Commission Standards QSA.05.02.01, adequate blood and blood components; QSA.05.03.03, requirements for policies and procedures for returning unused blood products to blood transfusion services; and QSA.05.22.01, records of blood product disposition.
- AABB Standards for Blood Banks and Transfusion Services assessment 8.2 that requires transfusing facilities to have a peer-review program that monitors transfusion practices for blood components.

Objective

Compare the rates of blood product wastage (ie, units discarded in-date) in participating hospitals and track rates of improvement over time.

Data Collection

On a monthly basis, participants will use blood bank records to obtain information on the total number of units transfused for each type of blood component. Participants will track the number and type of blood units that are wasted in-date and the circumstances of wastage. This monitor includes the following types of blood components: whole blood (allogeneic), red blood cells (allogeneic), frozen plasma, platelet concentrates, single donor platelets, and cryoprecipitate.

Performance Indicators

- Overall blood wastage rate (%)
- Wastage rates by blood component type (%)

Performance Breakdown

- Breakdown of circumstances of wastage (%)

Look for your input forms approximately two weeks prior to the quarter.

ABO Subgroup Typing ABOSG

Procedure	Program Code	Challenges per Shipment
	ABOSG	
ABO subgroup typing	▮	3
Rh typing	▮	3

Program Information
- Three 2.0-mL 3% red blood cell suspensions; three 2.0-mL corresponding serum specimens
- Two shipments per year

Red Blood Cell Antigen Genotyping RAG

Procedure	Program Code	Challenges per Shipment
	RAG	
Red blood cell antigen genotype with predictive phenotype	▮	3

Program Information
- Three 2.0-mL whole blood specimens
- Two shipments per year

Red Blood Cell Antigen Typing RBCAT

Procedure	Program Code	Challenges per Shipment
	RBCAT	
Red blood cell antigen typing	▮	2

Program RBCAT is for donor centers and transfusion laboratories performing non-automated/manual red cell phenotyping for the management of patients with complex serology (ie, alloimmunization, sickle cell disease, warm autoimmune hemolytic anemia). Challenges will include antigens such as Rh, Kell, MNSs, Duffy, and Kidd blood group system.

Program Information
- Two 2.0-mL 2%–4% red blood cell suspensions
- Two shipments per year

Make critical transfusion decisions with confidence.

Transfusion Medicine in the Hot Seat is a valuable educational resource for pathology trainees and pathologists practicing transfusion medicine. The text presents a total of 26 realistic transfusion scenarios divided into three sections:

- Antibodies
- Blood Components
- Complications

The short-case format makes the information easily accessible and can serve as the basis for a transfusion medicine curriculum in clinical pathology.

Add it to your order.

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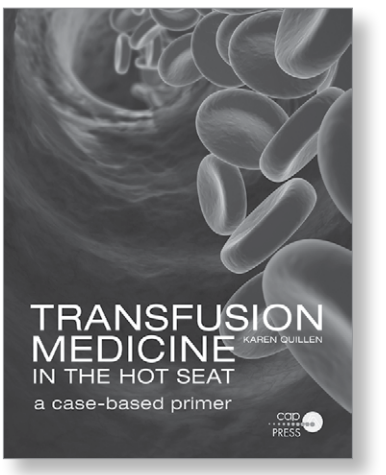

Item number: PUB224
Softcover; 123 pages

Antibody Titer ABT, ABT1, ABT2, ABT3

Procedure	Program Code				Challenges per Shipment
	ABT	ABT1	ABT2	ABT3	
Anti-A titer	▮	▮			1
Anti-B titer				▮	1
Anti-D titer	▮		▮		1

Program Information

- ABT - One 2.0-mL plasma specimen for anti-A titer with one corresponding titer cell (3%–4% red blood cell suspension); one 2.0-mL plasma specimen for anti-D titer with one corresponding titer cell (3%–4% red blood cell suspension)
- ABT1- One 2.0-mL plasma specimen for anti-A titer with one corresponding titer cell (3%–4% red blood cell suspension)
- ABT2 - One 2.0-mL plasma specimen for anti-D titer with one corresponding titer cell (3%–4% red blood cell suspension)
- ABT3 - One 2.0-mL plasma specimen for anti-B titer with one corresponding titer cell (3%–4% red blood cell suspension)
- Two shipments per year

Antibody Titer—Automated AABT, AABT1, AABT2, AABT3

Procedure	Program Code				Challenges per Shipment
	AABT	AABT1	AABT2	AABT3	
Anti-A titer	▮	▮			1
Anti-B titer				▮	1
Anti-D titer	▮		▮		1

Program Information

- AABT - One 2.0-mL plasma specimen for anti-A titer; one 2.0-mL plasma specimen for anti-D titer
- AABT1 - One 2.0-mL plasma specimen for anti-A titer
- AABT2 - One 2.0-mL plasma specimen for anti-D titer
- AABT3 - One 2.0-mL plasma specimen for anti-B titer
- Two shipments per year

Transfusion-Related Cell Count TRC

Procedure	Program Code	Challenges per Shipment
	TRC	
Platelet count (platelet-rich plasma)	▮	5
WBC count	▮	4
Paper challenge	▮	2

WBC counts must be performed using a Nageotte chamber, fluorescence microscopy, or by flow cytometry.

Program Information

- Five 1.2-mL suspensions of platelet-rich plasma
- Two 1.0-mL vials leukocyte-reduced platelet material
- Two 1.0-mL vials leukocyte-reduced red blood cells
- Three shipments per year

Direct Antiglobulin Testing DAT

Procedure	Program Code	Challenges per Shipment
	DAT	
Direct antiglobulin testing	▮	3

Program Information

- Three 2.0-mL 3% red blood cell suspensions
- For use with manual method
- Two shipments per year

Eluate Survey ELU

Procedure	Program Code	Challenges per Shipment
	ELU	
Antibody elution	▮	2

Program Information

- Two 2.0-mL 50% red blood cell suspensions
- Two shipments per year

Fetal Red Cell Detection HBF

Procedure	Program Code	Challenges per Shipment
	HBF	
Kleihauer-Betke and flow cytometry	▮	2
Rosette fetal screen	▮	2
Acid elution whole slide image	▮	1

Program Information

- Two 1.2-mL liquid whole blood specimens
- Not designed for F cell quantitation
- Two online, whole slide images per year with optional grids for cell counting
- Powered by DigitalScope® technology
- Two shipments per year

Platelet Serology PS

Procedure	Program Code	Challenges per Shipment
	PS	
Antibody detection	▮	3
Platelet crossmatch	▮	3
Platelet antibody identification	▮	3

A low concentration of sodium azide may be present in the specimens and may affect lymphocytotoxicity methods.

Program Information

- Three 3.0-mL plasma specimens
- For use with solid-phase red cell adherence, flow cytometry, and EIA/ELISA methods
- Two shipments per year

Transfusion Medicine Comprehensive—Competency Assessment TMCA

Procedure	Program Code	Challenges per Shipment
	TMCA	
ABO grouping	▮	2
Antibody detection	▮	2
Antibody identification	▮	2
Compatibility testing	▮	2
Rh typing	▮	2

Program TMCA does not meet the regulatory requirements for proficiency testing.

Program Information

- Two 3.0-mL 3% red blood cell suspensions
- Two 3.0-mL corresponding serum specimens
- One 3.0-mL donor 3% red blood cell suspension
- Three shipments per year; order shipments individually or for an entire year

Direct Antiglobulin Test—Competency Assessment TMCAD

Procedure	Program Code	Challenges per Shipment
	TMCAD	
Direct antiglobulin testing	▮	2

Program TMCAD does not meet the regulatory requirements for proficiency testing.

Program Information

- Two 2.0-mL 3% red blood cell suspensions
- Two shipments per year; order shipments individually or for an entire year

Eluate Competency Assessment TMCAE

Procedure	Program Code	Challenges per Shipment
	TMCAE	
Antibody elution	▮	2

Program TMCAE does not meet the regulatory requirements for proficiency testing.

Program Information

- Two 2.0-mL 50% red blood cell suspensions
- Two shipments per year; order shipments individually or for an entire year

Fetal Red Cell Quantitation—Competency Assessment TMCAF

Procedure	Program Code	Challenges per Shipment
	TMCAF	
Kleihauer-Betke, flow cytometry	▮	2
Rosette fetal screen	▮	2
Acid elution whole slide image	▮	1

Program TMCAF does not meet the regulatory requirements for proficiency testing.

Program Information

- Two 1.2-mL whole blood specimens
- Two online, whole slide images per year with optional grids for cell counting
- Powered by DigitalScope technology
- Two shipments per year; order shipments individually or for an entire year

Cord Blood and Stem Cell Processing CBT, SCP

Analyte	Program Code		Challenges per Shipment
	CBT	SCP	
Absolute CD3		▮	2
Absolute CD34	▮	▮	2
Bacterial culture	▮	▮	2
%CD3+		▮	2
%CD34+	▮	▮	2
%CD45+		▮	2
CFU-GM NEW	▮	▮	2
Total CFC	▮	▮	2
Fungal culture	▮	▮	2
Hematocrit		▮	2
Hemoglobin		▮	2
Mononuclear cell count	▮	▮	2
Nucleated red cells	▮		2
Number of CD34 positive events	▮	▮	2
Number of CD45 positive events		▮	2
Total nucleated cells	▮	▮	2
Viability	▮	▮	2
WBC count	▮	▮	2

Additional Information

- Because these materials are human donor-based, the ship date is subject to change. If this should occur, notification will be provided prior to the scheduled date. In some instances, the program may ship in two installments.
- Due to material stability, no replacements will be available.
- These programs have stability of two days or less. The CAP cannot guarantee performance or offer credits for orders placed for shipment outside of the US and Canada.
- See International Shipping information section in the Ordering Information Supplement regarding additional dangerous goods shipping fees.

Program Information

- CBT - Two 2.5-mL cord blood specimens; designed for assays required for the production of umbilical cord blood stem cell programs
- SCP - Two 3.0-mL peripheral blood specimens; designed for laboratories that process and assess the suitability of stem cells
- Two shipments per year

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Bacterial Detection in Platelets BDP, BDP5

Procedure	Program Code		Challenges per Shipment
	BDP	BDP5	
Bacterial culture and detection systems	▮		2
Bacterial culture and detection systems		▮	5

Additional Information

- The Centers for Medicare & Medicaid Services (CMS) requires proficiency testing for bacterial detection/identification. Please select the appropriate program for your laboratory based on the information below.
- Program BDP is designed for donor centers/laboratories that are associated with a CMS-certified microbiology laboratory with the same CLIA number and are participating in an approved proficiency testing program for bacterial detection.
- Program BDP5 is designed for donor centers/laboratories that are performing bacterial detection for the purposes of platelet unit screening and are not associated with a CMS-certified microbiology laboratory with the same CLIA number.
- See International Shipping information section in the Ordering Information Supplement regarding additional dangerous goods shipping fees.
- Note: In accordance with the new FDA guidance, the BDP and BDP5 programs increased the volume to 16 mL.

Program Information

- BDP - Two lyophilized pellet specimens with diluents; two shipments per year
- BDP5 - Five lyophilized pellet specimens with diluents; three shipments per year

Bacterial Detection in Platelets, Rapid BDPV, BDPV5

Procedure	Challenges per Shipment	
	Program Code	
	BDPV	BDPV5
CMS certified rapid immunoassay	2	5

Additional Information

- The Centers for Medicare & Medicaid Services (CMS) requires proficiency testing for bacterial detection in platelets.
- Program BDPV is designed for donor centers/laboratories that are associated with a CMS-certified microbiology laboratory with the same CLIA number and are participating in an approved proficiency testing program for bacterial detection.
- Program BDPV5 is designed for donor centers/laboratories that are performing bacterial detection for the purposes of platelet unit screening and are not associated with a CMS-certified microbiology laboratory with the same CLIA number.
- See International Shipping information section in the Ordering Information Supplement regarding additional dangerous goods shipping fees.

Program Information

- BDPV - Two frozen specimens; two shipments per year
- BDPV5 - Five frozen specimens; three shipments per year
- For use with methods such as Verax Biomedical

Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

Expanded Transfusion Medicine Exercises ETME1

Procedure	Program Code	Challenges per Shipment
	ETME1	
Expanded challenges	▮	2

Additional Information

Program ETME1 is an educational opportunity that offers:

- More challenging and/or complex antibody identification
- Comprehensive case studies in transfusion medicine
- Simulated collaboration with other professionals, including those within or outside your institution
- A method for determining the laboratory's ability to recognize and integrate problem solving skills in transfusion medicine

The wet challenge may consist of specimens for ABO grouping, Rh typing, antibody detection, antibody identification, compatibility testing, antigen typing, direct antiglobulin testing, antibody titer, and/or antibody elution.

Program Information

- One paper challenge and one wet challenge consisting of a serum specimen(s) and/or red blood cell suspensions
- Two shipments per year

Transfusion Medicine: A Compendium of Educational Cases (PUB228)

Based on more than 10 years of educational material used in proficiency testing from the CAP Transfusion, Apheresis, and Cellular Therapy Committee, this newest book on transfusion medicine consists of 20 cases with multiple-choice questions and answers. Topics covered reflect clinical cases as well as hot topics in transfusion medicine leveraging the clinical experience of 19 highly regarded transfusion medicine experts, all leaders in the field.

Contents include:

- Blood components including plasma, platelets, and red blood cells
- Neonatal/peripartum transfusion medicine
- Special situations such as hemolysis and transplantation
- Regulatory issues

Add Transfusion Medicine: A Compendium of Educational Cases (PUB228) to your order.

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- printed books at estore.cap.org

Item number: PUB228
Softcover; 90 pages; 2020

Viral Markers

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Viral Markers—Series 1 VM1

Analyte	Program Code	Challenges per Shipment
	VM1	
Anti-HAV (total: IgM and IgG)	▮	5
Anti-HAV (IgG)	▮	5
Anti-HBc (total: IgM and IgG)	▮	5
Anti-HBs	▮	5
Anti-HBs, quantitative	▮	5
Anti-HCV	▮	5
Anti-HIV-1	▮	5
Anti-HIV-1/2	▮	5
Anti-HIV-2	▮	5
HBsAg	▮	5

Program Information
- Five 3.5-mL plasma specimens
- Three shipments per year

Additional Information
- Do not use program VM1 with rapid anti-HCV, anti-HIV-1, or anti-HIV-1/2 kits. See page 241 for programs appropriate for rapid methods.
- Anti-HIV-1/2, HIV-1 p24 antigen combination assay users should enroll in the VM6 program. VM1 is not appropriate for this assay.

Viral Markers—Series 2 VM2

Analyte	Program Code	Challenges per Shipment
	VM2	
Anti-HBe	▮	5
HBeAg	▮	5

Program Information
- Five 3.5-mL plasma specimens
- Three shipments per year

Viral Markers—Series 3 VM3

Analyte	Program Code	Challenges per Shipment
	VM3	
Anti-CMV	▮	3
Anti-HTLV-I/II	▮	3
HIV-1 p24 antigen	▮	3

Program Information
- Three 3.5-mL plasma specimens
- Two shipments per year

Viral Markers—Series 4 VM4

Analyte	Program Code	Challenges per Shipment
	VM4	
Anti-*Trypanosoma cruzi* (Chagas disease)	▮	2

Program Information
- Two 1.0-mL plasma specimens
- Two shipments per year

Viral Markers—Series 5 VM5

Analyte	Program Code	Challenges per Shipment
	VM5	
Anti-HAV (IgM)	▮	5
Anti-HBc (IgM)	▮	5

Program Information
- Five 1.5-mL plasma specimens
- Three shipments per year

Viral Markers—Series 6 VM6, VM6X

Analyte	Program Code		Challenges per Shipment
	VM6	VM6X	
Anti-HIV-1/2	▮	▮	5
HIV-1 p24 antigen	▮	▮	5

Program Information
- VM6 - Five 0.5-mL plasma specimens
- VM6X - All program VM6 specimens in duplicate
- Three shipments per year

Anti-HIV 1/2 AHIV, AHIVW

Analyte/Procedure	Program Code		Challenges per Shipment
	AHIV	AHIVW	
Anti-HIV-1, Anti-HIV-2, Anti-HIV-1/2	▮		5
Anti-HIV-1, Anti-HIV-1/2, waived methods only		▮	2

Program Information
- AHIV - Five 0.5-mL plasma specimens; three shipments per year
- AHIVW - Two 0.5-mL plasma specimens; two shipments per year

Anti-HCV, Rapid Methods, Waived RHCVW

Analyte/Procedure	Program Code	Challenges per Shipment
	RHCVW	
Anti-HCV, waived methods only	▮	3

Program Information
- Three 0.5-mL plasma specimens
- Two shipments per year

Nucleic Acid Testing NAT

Analyte	Program Code	Challenges per Shipment
	NAT	
Babesia	▮	1
HBV	▮	5
HCV	▮	5
HIV	▮	5
West Nile virus	▮	5

Program Information

- Five 6.0-mL plasma specimens
- One 1.0-mL whole blood Babesia specimen
- Designed for blood donor centers performing nucleic acid testing on donor units
- Compatible with HIV, HCV, and HBV multiplex assays
- Three shipments per year

Vector-Borne Disease—Molecular VBDM

Analyte	Program Code	Challenges per Shipment
	VBDM	
Zika virus	▮	3

Program Information

- Three 1.5-mL liquid specimens
- Two shipments per year

Parentage Testing

Parentage/Relationship Test—Filter Paper PARF

Analyte/Procedure	Program Code	Challenges per Shipment
	PARF	
Calculation challenge (paper challenge)	▮	1
DNA testing (PCR)	▮	4

Program Information

- Three blood-stained filter paper paternity trio specimens; two buccal swabs for a second alleged-father challenge
- Reporting for short tandem repeats (STRs), X-STRs, Y-STRs, as well as the conclusions provided
- Three shipments per year

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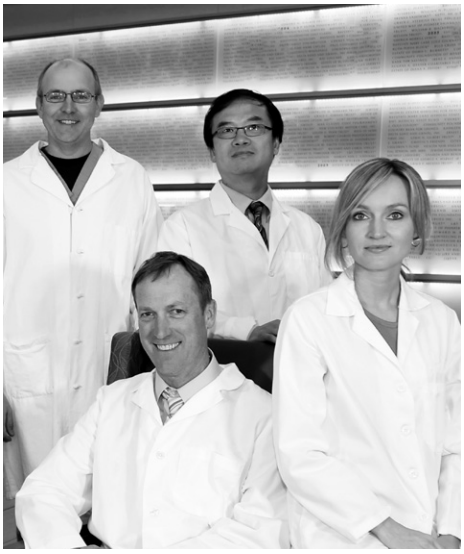
18 Histocompatibility



Benefit from the support of experts in laboratory medicine.

These experts spend countless hours monitoring testing trends to:

- Determine specimen specifications for PT programs to challenge participants.
- Keep our offerings contemporary with new analytes and programs.
- Provide peer-reviewed continuing medical education, continuing education, and self-assessment modules.

Histocompatibility

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

HLA Crossmatching, Antibody Screen, and Antibody Identification (Class I/Class II) MXB, MXC, MXE

Procedure	Program Code			Challenges per Shipment
	MXB	MXC	MXE	
Crossmatching (Class I/Class II)	▮	▮		8
Antibody screen (Class I/Class II)	▮	▮	▮	4
Antibody identification (Class I/Class II)	▮	▮	▮	4

Program Information

- MXB - Four 0.25-mL plasma specimens; two (approximately 5-6 x 10^6 cells) purified blood lymphocyte specimens
- MXC - Four 0.5-mL plasma specimens; two (approximately 7-8 x 10^6 cells) purified blood lymphocyte specimens
- MXE - Four 0.25-mL plasma specimens; must be ordered in conjunction with program MXB or MXC
- Three shipments per year

Class I & II HLA Molecular Typing DML

Procedure	Program Code	Challenges per Shipment
	DML	
Molecular HLA-A, -B, and -C typing (Class I)	▮	5
Molecular HLA-DR, -DQ, and -DP typing (Class II)	▮	5

Program Information

- Five approximately 2.0-mL whole blood specimens in CPD-A
- Serologic equivalents and MICA reporting available
- Three shipments per year

HLA-B27 Typing B27

Procedure	Program Code	Challenges per Shipment
	B27	
HLA-B27 typing	▮	5

Program Information

- Five 2.0-mL whole blood specimens in CPD-A
- Two shipments per year

Antibody Titer ABT, ABT1, ABT2, ABT3

Procedure	Program Code				Challenges per Shipment
	ABT	ABT1	ABT2	ABT3	
Anti-A titer	▮	▮			1
Anti-B titer				▮	1
Anti-D titer	▮		▮		1

Program Information

- ABT - One 2.0-mL plasma specimen for anti-A titer with one corresponding titer cell (3%–4% red blood cell suspension); one 2.0-mL plasma specimen for anti-D titer with one corresponding titer cell (3%–4% red blood cell suspension)
- ABT1- One 2.0-mL plasma specimen for anti-A titer with one corresponding titer cell (3%–4% red blood cell suspension)
- ABT2 - One 2.0-mL plasma specimen for anti-D titer with one corresponding titer cell (3%–4% red blood cell suspension)
- ABT3 - One 2.0-mL plasma specimen for anti-B titer with one corresponding titer cell (3%–4% red blood cell suspension)
- Two shipments per year

Antibody Titer—Automated AABT, AABT1, AABT2, AABT3

Procedure	Program Code				Challenges per Shipment
	AABT	AABT1	AABT2	AABT3	
Anti-A titer	▮	▮			1
Anti-B titer				▮	1
Anti-D titer	▮		▮		1

Program Information

- AABT - One 2.0-mL plasma specimen for anti-A titer; one 2.0-mL plasma specimen for anti-D titer
- AABT1 - One 2.0-mL plasma specimen for anti-A titer
- AABT2 - One 2.0-mL plasma specimen for anti-D titer
- AABT3 - One 2.0-mL plasma specimen for anti-B titer
- Two shipments per year

Monitoring Engraftment ME		
Procedure	**Program Code**	**Challenges per Shipment**
	ME	
Stem cell monitoring engraftment	▮	5

Program Information

- Seven 0.5-mL whole blood specimens
- Designed for laboratories supporting stem cell transplant and laboratories monitoring chimerism after organ transplantation
- Two shipments per year

Atlas of Transplant Pathology (PUB124)

This atlas serves as a handy resource for practical interpretation of solid organ transplant biopsies and other specimens by general pathologists as well as subspecialists.

Covers heart, kidney, liver, lung, and pancreas.

Add it to your order.

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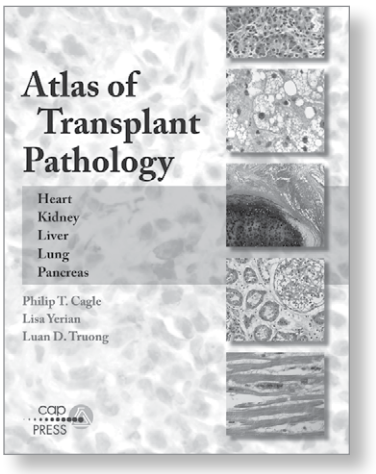

Item number: PUB124
254 pages; 600+ photomicrographs and tables; 2015

HLA Disease Association-Drug Risk DADR1, DADR2

Analyte	Program Code		Challenges per Shipment
	DADR1	DADR2	
HLA-A*31:01	▮		3
HLA-B*13:01	▮		3
HLA-B*15:02	▮		3
HLA-B*57:01	▮		3
HLA-B*58:01	▮		3
HLA-A*29:01		▮	3
HLA-A*29:02		▮	3
HLA-DQA1*04:01		▮	3
HLA-DQA1*05:01		▮	3
HLA-DQB1*03:02		▮	3
HLA-DQB1*06:02		▮	3
HLA-DRB1*03:01		▮	3
HLA-DRB1*03:02		▮	3
HLA-DRB1*04:02		▮	3
HLA-DRB1*04:03		▮	3
HLA-DRB1*04:06		▮	3
HLA-DRB1*08:02		▮	3
HLA-DRB1*08:04		▮	3
HLA-DRB1*14:04		▮	3
HLA-DRB1*14:05		▮	3
HLA-DRB1*14:08		▮	3
HLA-DRB1*15:01		▮	3
HLA-DRB1*15:02		▮	3
HLA-DQA1*02		▮	3
HLA-DQA1*03		▮	3
HLA-DQA1*05		▮	3
HLA-DQB1*02:01		▮	3
HLA-DQB1*02:02		▮	3

Program Information

- DADR1, DADR2 - Three 0.1-mL specimens, each containing 200 µg/mL of human DNA in media
- Two shipments per year

Additional Information

These programs will challenge the laboratory to accurately identify the presence or absence of alleles associated with a variety of disease states (listed below) and/or the adverse reactions to specific drugs.

DADR1

- o Carbamazepine induced Stevens-Johnson syndrome
- o Allopurinol Stevens-Johnson syndrome
- o Hypersensitivity to abacavir
- o Dapsone hypersensitivity

DADR2

- o Celiac disease
- o Narcolepsy
- o Pemphigus vulgaris
- o Psoriasis
- o Antiglomerular basement membrane disease
- o Birdshot retinochoroidopathy
- o Idiopathic myopathy

Systemwide Insight at a Glance.

In just seconds, the CAP's Performance Analytics Dashboard provides valuable insights into your laboratory system's performance, letting you proactively focus energy on areas and laboratories that need immediate attention while filtering out distractions. Updated daily, this complimentary proficiency testing and CAP accreditation performance monitoring tool reduces the stress of managing today's laboratory by giving you fast access to a single laboratory or your network's performance.

View your laboratory's Performance Analytics Dashboard by accessing e-LAB Solutions Suite from cap.org.

"I can view our complete system, 12 labs, on a single Performance Analytics Dashboard. I am also able to create and modify laboratory subgroups, such as by region or size, for reporting dashboard performance analytics."

Crystal Sands, MBA, MT(ASCP)SM
Manager of Quality, Regulatory, and Safety
at NorDx Laboratories

19 Genetics and Molecular Pathology

The CAP broadens its network of laboratory experts through its collaborations.

Among the organizations with which we partner:

- American Association for Clinical Chemistry (AACC)
- American College of Medical Genetics and Genomics (ACMG)
- Association for Molecular Pathology (AMP)
- National Society for Histotechnology (NSH)

Genetics and Molecular Pathology

New Programs NEW

Program Changes

New Analyte Additions NEW

Discontinued Programs

Next-Generation Sequencing Bioinformatics (NGSB2)
Pharmacogenetics (PGX2)

Cytogenetics

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

CAP/ACMG Cytogenetics CY, CYBK

Analyte/Procedure	Program Code		Challenges per Shipment
	CY	CYBK	
Chromosome abnormality	▮	▮	6
Karyotype nomenclature	▮	▮	6
Educational challenge	▮	▮	1 per year

Each challenge includes a case history and images of metaphase cells that are representative of each case. Each mailing will include three constitutional and three neoplastic challenges.

Program Information

- CY - Online images of metaphase cells delivered two times a year; your CAP shipping contact will be notified via email when the activity is available
- CYBK - Prints of metaphase cells; two shipments per year

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CAP/ACMG Fluorescence In Situ Hybridization CYF, CYI

Disease/Procedure	Program Code		Challenges per Shipment	
	CYF	CYI	A	B
Constitutional and Hematologic Disorders				
FISH for constitutional disorder - slides	▮		1	1
FISH for constitutional disorder - paper/image challenge	▮		2	2
FISH for hematologic disorder - slides	▮		1	1
FISH for hematologic disorder - paper/image challenge	▮		2	2
Urothelial Carcinoma				
FISH for urothelial carcinoma		▮	2	2

Program Information

- CYF - Four slides and four paper/image challenges
- CYI - Two 250-µL cell samples suspended in ethanol from two different specimens; participants use FISH to detect chromosome abnormalities
- Two shipments per year

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Additional Information

- CYF 2022-A:
  Constitutional disorder - *ELN* (7q11.23) (two slides)
  Constitutional disorder - two paper/image challenges
  Hematologic disorder - 16q deletion (two slides)
  Hematologic disorder - two paper/image challenges
- CYF 2022-B:
  Constitutional disorder - DiGeorge syndrome critical region (two slides)
  Constitutional disorder - two paper/image challenges
  Hematologic disorder - *BCR/ABL1* (two slides)
  Hematologic disorder - two paper/image challenges
- CYF is prepared from cell suspension samples. For FISH in paraffin-embedded tissues, see page 253.
- These programs are only for laboratories that perform both hybridization and interpretation under the same CLIA number.

CAP/ACMG Fluorescence In Situ Hybridization for Paraffin-Embedded Tissue CYH, CYJ, CYK, CYL

Analyte/Procedure	Program Code				Challenges per Shipment	
	CYH	CYJ	CYK	CYL	A	B
Breast Cancer						
HER2 gene amplification	▮				10	10
Educational challenges for *HER2* gene amplification	▮				3	3
Brain/Glioma Tissue						
1p/19q		▮			1	1
Solid Tumor						
FOXO1 gene rearrangement			▮		1	
EWSR1 gene rearrangement			▮			1
Lymphoma Tissue						
BCL2 gene rearrangement				▮	1	
BCL6 gene rearrangement				▮		1

Additional Information

- These programs are only for laboratories that perform both hybridization and interpretation under the same CLIA number.
- For interpretation only *HER2* FISH for breast cancer, see page 295.

Program Information

- CYH - Two unstained, five-core tissue microarray slides equivalent to 10 paraffin-embedded breast tissue specimens; two H&E stained tissue microarray slides will also be provided
- CYJ - Four unstained slides; one H&E stained slide
- CYK, CYL - Two unstained slides; one H&E stained slide
- All CYJ, CYK, CYL specimens will be 4.0-micron tissue sections mounted on positively charged glass slides
- Two shipments per year

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CAP/ACMG Constitutional Microarray CYCGH

Procedure	Program Code	Challenges per Shipment
	CYCGH	
Cytogenomic microarray analysis for constitutional abnormality	▮	2
Educational challenge for constitutional abnormality	▮	1

Program Information

- Two 2.0-µg DNA specimens; one dry challenge
- Two shipments per year

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Additional Information

- Participants will identify and characterize gains or losses and the cytogenetic location of abnormalities detected.
- This program is not appropriate for low resolution arrays that are designed to detect only aneuploidy.

CAP/ACMG Oncology Microarray CYCMA

Procedure	Program Code	Challenges per Shipment
	CYCMA	
Cytogenomic microarray analysis for oncologic abnormality	▮	1
Educational challenge for oncologic abnormality	▮	1

Program Information

- One 2.0-ug DNA specimen; one dry challenge
- Two shipments per year

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Participants will identify and characterize gains or losses and the cytogenetic location of abnormalities detected.

Biochemical and Molecular Genetics

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

CAP/ACMG Biochemical Genetics BGL, BGL1

Analyte/Procedure	Program Code		Challenges per Shipment
	BGL	BGL1	
Acylcarnitines, qualitative and quantitative	▮		1
Amino acids, qualitative and quantitative	▮		1
Carnitine, qualitative and quantitative		▮	3
Glycosaminoglycans (mucopolysaccharides), qualitative and quantitative	▮		1
Organic acids, qualitative and quantitative	▮		1
Educational challenge	▮		1

Program Information

- BGL -
  - Acylcarnitines: One 0.1-mL plasma specimen
  - Amino acids: One 1.0-mL plasma or 2.0-mL urine specimen
  - Glycosaminoglycans (mucopolysaccharides): One 2.0-mL urine specimen
  - Organic acids: One 7.5-mL urine specimen
  - Educational challenge: Will consist of any one of the BGL analytes
- BGL1 - Three 0.3-mL serum specimens
- Two shipments per year

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Give the CAP's complimentary Sample Exchange Registry service a try!

Sign up for this unique and complimentary service for those rare analytes for which proficiency testing is not yet available. This service now includes all clinical laboratory disciplines.

- The CAP connects laboratories performing testing for which no formal proficiency testing is available.
- There is no charge for this service.
- Participate at any time, no contract required.
- A minimum of three laboratories performing the same analyte test must participate before the CAP can facilitate the sample exchange.
- Each individual laboratory will receive its own results along with an anonymized summary report for all participants.

Visit cap.org and from the Laboratory Improvement tab, choose Proficiency Testing > Sample Exchange Registry.

CAP/ACMG Amino Acid Quantitation for Inherited Metabolic Disorders BGL2

Analyte/Procedure	Program Code	Challenges per Shipment
	BGL2	
Alanine	▮	3
Alloisoleucine	▮	3
Arginine	▮	3
Aspartic acid	▮	3
Citrulline	▮	3
Cystine	▮	3
Glutamic acid	▮	3
Glutamine	▮	3
Glycine	▮	3
Histidine	▮	3
Homocystine	▮	3
Hydroxyproline	▮	3
Isoleucine	▮	3
Leucine	▮	3
Lysine	▮	3
Methionine	▮	3
Ornithine	▮	3
Phenylalanine	▮	3
Proline	▮	3
Serine	▮	3
Taurine	▮	3
Threonine	▮	3
Tryptophan	▮	3
Tyrosine	▮	3
Valine	▮	3

Program Information

- Three 1.0-mL liquid specimens
- Two shipments per year

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CAP/ACMG Alpha-1 Antitrypsin Genotyping AAT

Analyte/Procedure	Program Code	Challenges per Shipment
	AAT	
Alpha-1 antitrypsin (*SERPINA1*) genotyping	▮	3

This program will test for the M, S, and Z alleles.

Program Information

- Three 10.0-µg extracted DNA specimens
- Two shipments per year

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CAP/ACMG Apolipoprotein E Genotyping APOE

Analyte/Procedure	Program Code	Challenges per Shipment
	APOE	
Apolipoprotein E (*APOE*) genotyping	▮	3

This program is designed for laboratories utilizing *APOE* testing for hyperlipoproteinemia type III and Alzheimer diseases and will test for *APOE* e2, *APOE* e3, and *APOE* e4.

Program Information

- Three 10.0-µg extracted DNA specimens
- Two shipments per year

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CAP/ACMG *BRCA1/2* Sequencing BRCA

Analyte/Procedure	Program Code	Challenges per Shipment
	BRCA	
BRCA1/2 DNA sequencing and variant interpretation	▮	3
BRCA1/2 duplication/deletion analysis	▮	3

Additional Information

- Test your skill at reporting and interpreting DNA sequence variants for *BRCA1/2* using standard nomenclature.
- Receive a summary and discussion of responses, including comments on the variant nomenclature and known or expected outcomes from identified variants.
- Primers are not included; laboratories are expected to utilize the primers used in routine clinical testing.

Program Information

- Three 10.0-µg extracted DNA specimens
- Results for this program must be submitted online through e-LAB Solutions Suite
- Two shipments per year

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CAP/ACMG Cardiomyopathy Sequencing Panel CMSP

Analyte/Procedure	Program Code	Challenges per Shipment
	CMSP	
Cardiomyopathy sequencing panel	▮	3

Additional Information

- This proficiency challenge is for laboratories performing gene panels, exome sequencing, and whole genome sequencing to detect germline variants associated with inherited forms of cardiomyopathy.
- Participants will be asked to identify variants in the following genes: *ACTC1*, *MYBPC3*, *MYH7*, *MYL2*, *MYL3*, *TNNI3*, *TNNT2*, and *TPM1*.

Program Information

- Three 80.0-µL purified extracted DNA specimens (50 ng/µL)
- Results for this program must be submitted online through e-LAB Solutions Suite
- Two shipments per year

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CAP/ACMG Hemoglobinopathies Genotyping HGM

Analyte/Procedure	Program Code	Challenges per Shipment
	HGM	
Alpha-thalassemia	▮	3
Beta-thalassemia	▮	3
Hemoglobin S/C	▮	3

Program Information

- Three 50.0-µg extracted DNA specimens
- Two shipments per year

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CAP/ACMG Inherited Cancer Sequencing Panel ICSP

Analyte/Procedure	Program Code	Challenges per Shipment
	ICSP	
Inherited cancer sequencing panel	▮	3

Additional Information

- This proficiency challenge is for laboratories performing gene panels, exome sequencing, and whole genome sequencing to detect germline variants associated with inherited forms of cancer.
- Participants will be asked to identify variants in the following genes: *APC*, *ATM*, *BRCA1*, *BRCA2*, *CDKN2A*, *CHEK2*, *MLH1*, *MSH2*, *MSH6*, *PALB2*, and *PMS2*.

Program Information

- Three 80.0-µL purified extracted DNA specimens (50 ng/µL)
- Results for this program must be submitted online through e-LAB Solutions Suite
- Two shipments per year

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CAP/ACMG Molecular Genetics Series MGL1, MGL2, MGL3, MGL4, MGL5

Disease/Gene	Program Code					Challenges per Shipment
	MGL1	MGL2	MGL3	MGL4	MGL5	
Bloom syndrome (*BLM* gene)				▮		3
BRCA1/2			▮			3
Canavan (*ASPA* gene)				▮		3
Connexin 26 (*GJB2* gene)			▮			3
Cystic fibrosis (*CFTR* gene)		▮			▮	3/2(MGL5)
DMD/Becker (*DMD* gene)		▮				3
Factor V Leiden (*F5* gene)	▮					3
Familial dysautonomia (*ELP1* gene)				▮		3
Fanconi anemia complementation group C (*FANCC* gene)				▮		3
Fragile X (*FMR1* gene)	▮					3
Friedreich ataxia (*FXN* gene)		▮				3
Gaucher (*GBA* gene)				▮		3
Glycogen storage disease type IA (*G6PC* gene)				▮		3
Hemochromatosis (*HFE* gene)	▮					3
Hemoglobin S/C		▮				3
Huntington (*HTT* gene)		▮				3
Methylenetetrahydrofolate reductase (*MTHFR* gene) c.665C>T (677C>T) and c.1286A>C (1298A>C)	▮					3
Mucolipidosis IV (*MCOLN1* gene)				▮		3
Multiple endocrine neoplasia type 2 (*RET* gene)			▮			3
Myotonic dystrophy (*DMPK* gene)		▮				3
Niemann-Pick type A/B (*SMPD1* gene)				▮		3
Plasminogen activator inhibitor (PAI)-1 (*SERPINE1* gene)	▮					3

Continued on the next page

Program Information

- MGL1, MGL2, MGL3, MGL4 - Three 50.0-µg extracted DNA specimens per disease/gene
- MGL5 - Two 50.0-µg extracted DNA specimens
- Two shipments per year

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Additional Information

- The *BRCA1/2* program (module MGL3) is designed for laboratories testing for the three Ashkenazi Jewish founder mutations.
- The cystic fibrosis programs (modules MGL2 and MGL5) are designed for laboratories that are testing for the minimum mutation panel for population-based carrier screening (ie, the ACMG-23 mutation panel) from the ACMG Technical Standards and Guidelines for *CFTR* Mutation Testing, expanded panels, PolyT variant analysis, and/or full gene sequencing.
- Module MGL4 is designed for laboratories testing for diseases/disorders related to Ashkenazi Jewish ancestry.
- The Prader-Willi/Angelman syndrome program is designed for laboratories using methylation techniques for analysis.

CAP/ACMG Molecular Genetics Series MGL1, MGL2, MGL3, MGL4, MGL5 continued

Disease/Gene	Program Code					Challenges per Shipment
	MGL1	MGL2	MGL3	MGL4	MGL5	
Prader-Willi/Angelman syndrome	▮					3
Prothrombin (*F2* gene)	▮					3
RhD		▮				3
Spinal muscular atrophy (*SMN1* and *SMN2* genes)		▮				3
Spinocerebellar ataxia (*ATXN1*, *ATXN2*, *ATXN3*, *CACNA1A*, and *ATXN7* genes)		▮				3
Tay-Sachs (*HEXA* gene)				▮		3

Additional Information

- The *BRCA1/2* program (module MGL3) is designed for laboratories testing for the three Ashkenazi Jewish founder mutations.
- The cystic fibrosis programs (modules MGL2 and MGL5) are designed for laboratories that are testing for the minimum mutation panel for population-based carrier screening (ie, the ACMG-23 mutation panel) from the ACMG Technical Standards and Guidelines for *CFTR* Mutation Testing, expanded panels, PolyT variant analysis, and/or full gene sequencing.
- Module MGL4 is designed for laboratories testing for diseases/disorders related to Ashkenazi Jewish ancestry.
- The Prader-Willi/Angelman syndrome program is designed for laboratories using methylation techniques for analysis.
- The Spinal Muscular Atrophy program includes *SMN1* and *SMN2* gene analysis and copy number analysis.

Program Information

- MGL1, MGL2, MGL3, MGL4 - Three 50.0-µg extracted DNA specimens per disease/gene
- MGL5 - Two 50.0-µg extracted DNA specimens
- Two shipments per year

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CAP/ACMG Inherited Metabolic Diseases IMD1, IMD2, IMD3

Analyte/Procedure	Program Code			Challenges per Shipment
	IMD1	IMD2	IMD3	
Mitochondrial DNA deletion syndromes	▮			3
MCAD		▮		3
Mitochondrial cytopathies*			▮	3

*Includes disorders/diseases such as Leber hereditary optic neuropathy and myoclonus epilepsy with ragged red fibers (MERRF).

Program Information

- IMD1 - Three 50.0-µL DNA specimens (50.0 ng/µL DNA PCR product that encompasses the entire mitochondrial genome)
- IMD2, IMD3 - Three 50.0-µg extracted DNA specimens
- Two shipments per year

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CAP/ACMG Molecular Genetics Sequencing SEC, SEC1

Procedure	Program Code		Challenges per Shipment
	SEC	SEC1	
DNA sequencing interpretation challenge	▮		3
DNA sequencing		▮	3

Additional Information

- Test your skill at interpreting and reporting DNA sequence variants for inherited diseases using standard nomenclature.
- Receive a summary and discussion of responses, including comments on nomenclature, known or expected outcomes from identified variants, and teaching points about genes/disorders represented.

Program Information

- SEC - DNA sequence electropherogram files with a range of variants, suitable for base-calling and analysis using a range of commercial or public domain software programs; also includes nomenclature/variant references. Two online activities per year; your CAP shipping contact will be notified via email when the activity is available
- SEC1 - Three 30.0-µg extracted DNA specimens; forward and reverse lyophilized primers are provided. Two shipments per year
- Results for both programs must be submitted online through e-LAB Solutions Suite

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Pharmacogenetics PGX, PGX1, PGX3

Analyte/Procedure	Program Code			Challenges per Shipment
	PGX	PGX1	PGX3	
CYP2C19	▮			3
CYP2C9	▮			3
CYP2B6 NEW	▮			3
CYP2D6	▮			3
CYP3A4	▮			3
CYP3A5	▮			3
CYP4F2	▮			3
SLCO1B1 (rs4149056)	▮			3
VKORC1	▮			3
IL28B (rs12979860)		▮		3
COMT NEW		▮		3
OPRM1 NEW		▮		3
DPYD			▮	3
NUDT15			▮	3
TPMT			▮	3
UGT1A1			▮	3

UGT1A1 (PGX3 program) tests the laboratory's ability to detect variants in the TATA repeat sequence in the *UGT1A1* promotor (eg, *UGT1A1*28* with seven TA repeats). The ability to detect variants in other regions of the *UGT1A1* gene is not part of this program.

Program Information

- PGX, PGX1, PGX3 - Three 25.0-µg extracted DNA specimens
- Includes allele detection (genotyping) and/or interpretive challenges
- Two shipments per year

CAP/ACMG Rett Syndrome (*MECP2*) RETT

Analyte/Procedure	Program Code	Challenges per Shipment
	RETT	
Rett (*MECP2*) genotyping	▮	3
Rett (*MECP2*) duplication/deletion analysis	▮	3

Program Information

- Three 10.0-µg extracted DNA specimens
- Two shipments per year

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CAP/ACMG Thrombophilia Mutations TPM

Analyte/Procedure	Program Code	Challenges per Shipment
	TPM	
Factor II (*F2* gene, Prothrombin)	▮	3
Factor V Leiden (*F5* gene)	▮	3

This program is designed for the Cepheid GeneXpert factor II and factor V assays. DNA extraction for other assays/methods is NOT recommended.

Program Information

- Three 250.0-µL synthetic whole blood specimens
- Two shipments per year

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Red Blood Cell Antigen Genotyping RAG

Procedure	Program Code	Challenges per Shipment
	RAG	
Red blood cell antigen genotype with predictive phenotype	▮	3

Program Information

- Three 2.0-mL whole blood specimens
- Two shipments per year

Variant Interpretation Only Program VIP/VIP1

Analyte/Procedure	Program Code	Challenges per Shipment
	VIP/VIP1	
Variant interpretation online case review	▮	3

Additional Information

VIP is an educational activity for pathologists, PhDs, genetic counselors, technologists, and any other laboratory staff with an interest in germline variant interpretation to assess and improve their diagnostic skills. All cases will comply with the 2015 ACMG standards and guidelines for the interpretation of sequence variants and will include:

- A clinical history with relevant laboratory data
- Results of ancillary studies, where appropriate
- Case discussion and discussion of interpretive criteria
- A variety of germline variants, diseases, and disorders

Program Information

- VIP - Three germline diagnostic challenges; reporting with CME/CE credit is available for one pathologist, MD, PhD, technologist, or genetic counselor
- VIP1 - Reporting option with CME/CE credit for each additional pathologist, MD, PhD, technologist, or genetic counselor (within the same institution); must order in conjunction with program VIP
- Earn a maximum of 3.75 CME credits *(AMA PRA Category 1 Credits™)* per pathologist/MD/PhD and a maximum of 3.75 CE credits per technologist/genetic counselor for completion of an entire year
- This activity meets Continuing Certification (CC) requirements for Improvement in Medical Practice (IMP)
- One online educational activity per year; your CAP shipping contact will be notified via email when the activity is available

Noninvasive Prenatal Testing NIPT

Analyte	Program Code	Challenges per Shipment
	NIPT	
Cell-free DNA screening for fetal aneuploidy	▮	3

Noninvasive prenatal testing is an exercise and is not considered proficiency testing. This exercise may be used to meet the requirements for alternative assessment.

Program Information

- Three liquid specimens
- Two shipments per year

Next-Generation Sequencing

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

All laboratories subject to US Clinical Laboratory Improvement Amendments (CLIA) Regulations: Proficiency testing (PT) challenges must NOT be referred to another laboratory for any portion of NGS testing, even if this is how patient testing is routinely performed. For PT challenges, any referral is strictly prohibited by CMS.

Next-Generation Sequencing—Germline NGS

Procedure	Program Code	Challenges per Shipment
	NGS	
Next-generation sequencing	▮	2

Laboratories will have the ability to analyze up to 200 preselected chromosomal positions or intervals in hg19 (GRCh37) and hg38 (GRCh38) coordinates within various genes; for a full list of genes in this program, please go to cap.org. Under the Laboratory Improvement tab, click on Catalog and Ordering Information. The list is located under the PT Order Supplements header.

Program Information

- One 10.0-µg extracted gDNA specimen; one educational variant interpretation paper challenge
- Methods-based challenge for germline variants for laboratories using gene panels, exome, and whole genome sequencing
- Results for this program must be submitted online through e-LAB Solutions Suite
- Two shipments per year

Next-Generation Sequencing—Solid Tumor NGSST

Procedure	Program Code	Challenges per Shipment
	NGSST	
Next-generation sequencing	▮	3

Additional Information

- This is a methods-based proficiency challenge for laboratories performing targeted next-generation sequencing of cancer genes or mutation hotspots in solid tumors. Laboratories will be asked to identify somatic single nucleotide variants and small insertions or deletions in some of these genes: *AKT1, ALK, APC, ATM, BRAF, CDH1, CTNNB1, EGFR, ERBB2, FBXW7, FGFR2, GNAQ, GNAS, HRAS, IDH1, KIT, KRAS, MET, NRAS, PDGFRA, PIK3CA, PTEN, SMAD4, SMARCB1, SMO, SRC, STK11, TP53.*
- This program includes variants present with a variant allele fraction (VAF) potentially as low as 5%.

Program Information

- Three 1.0-µg gDNA (50 ng/µL) specimens
- Two shipments per year

Next-Generation Sequencing—Hematologic Malignancies NGSHM

Procedure	Program Code	Challenges per Shipment
	NGSHM	
Next-generation sequencing	▮	3

Program Information

- Three 1.0-µg gDNA (50 ng/µL) specimens
- Two shipments per year

Additional Information

- This is a methods-based proficiency challenge for laboratories performing targeted next-generation sequencing of genes or mutation hotspots in hematologic malignancies. Laboratories will be asked to identify somatic single nucleotide variants and small insertions or deletions in some of these genes: *ASXL1, ATM, BRAF, CALR, CEBPA, CREBBP, CSF3R, DNMT3A, EZH2, FLT3, IDH1, IDH2, JAK2, KIT, KMT2D, MPL, MYD88, NOTCH1, NPM1, SF3B1, SRSF2, TET2, TP53, U2AF1*.
- This program includes variants present with a variant allele fraction (VAF) potentially as low as 5%.

Next-Generation Sequencing Solid Tumor Bioinformatics NGSB1

Procedure	Program Code	Challenges per Shipment
	NGSB1	
Illumina TruSeq Amplicon Cancer Panel	▮	1
Illumina TruSight Tumor 15 Panel	▮	1
Illumina TruSight Tumor 170 Panel	▮	1
Illumina TruSight Oncology 500 Panel	▮	1
Thermo Fisher Ion AmpliSeq Cancer Hotspot Panel v2	▮	1
Thermo Fisher Oncomine Comprehensive Assay v3	▮	1
Thermo Fisher Oncomine Focus Cancer Panel	▮	1

Program Information

- Sequencing files containing somatic variants to be downloaded and incorporated into your laboratory bioinformatics pipeline for analysis and reporting; file sizes range from 100MB to 1GB
- BAM and FASTQ file formats
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Additional Information

- This *in silico* bioinformatics program is designed to complement and augment somatic variant wet bench NGS proficiency testing programs by testing a greater diversity of variants at a greater range of variant allele fractions.
- The BAM and/or FASTQ files are platform-specific and may not be compatible with other instruments/software.
- Laboratories will be asked to identify somatic single nucleotide variants and small insertions/deletions/indels in some of these genes: *ABL1, AKT1, ALK, APC, ATM, BRAF, CDH1, CDKN2A, CSF1R, CTNNB1, EGFR, ERBB2, ERBB4, FBXW7, FGFR1, FGFR2, FGFR3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, JAK3, KDR, KIT, KRAS, MET, MLH1, MPL, NOTCH1, NPM1, NRAS, PDGFRA, PIK3CA, PTEN, PTPN11, RB1, RET, SMAD4, SMARCB1, SMO, SRC, STK11, TP53, VHL*.
- This program includes variants present with a variant allele fraction (VAF) potentially as low as 5%.

NEW

Next-Generation Sequencing Hematologic Malignancies Bioinformatics NGSB3

Procedure	Program Code	Challenges per Shipment
	NGSB3	
Illumina TruSight Myeloid Sequencing Panel	▮	1
Thermo Fisher Oncomine Myeloid Assay	▮	1

Additional Information

- This *in silico* bioinformatics program is designed to complement and augment somatic variant wet bench NGS proficiency testing programs by testing a greater diversity of variants at a greater range of variant allele fractions.
- The BAM and/or FASTQ files are platform-specific and may not be compatible with other instruments/software.
- Laboratories will be asked to identify somatic single nucleotide variants and small insertions/deletions/indels in some of these genes: *ABL1, ASXL1, BCOR, BRAF, CALR, CBL, CEBPA, DNMT3A, ETV6, FLT3, GATA2, IDH1, IDH2, JAK2, KIT, KRAS, MYD88, NPM1, NRAS, PTPN11, SETBP1, SF3B1, STAG2, TET2, TP53, U2AF1, WT1, ZRSR2.*
- This program includes variants present with a variant allele fraction (VAF) potentially as low as 5%.

Program Information

- Sequencing files containing somatic variants to be downloaded and incorporated into your laboratory bioinformatics pipeline for analysis and reporting; file sizes range from 100MB to 1GB
- BAM and FASTQ file formats
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Next-Generation Sequencing Undiagnosed Disorders—Exome NGSE

Analyte/Procedure	Program Code	Challenges per Shipment
	NGSE	
Exome analysis for germline undiagnosed disorders	▮	1

Additional Information/Minimum Requirements

- This *in silico* based program will assess the ability of the laboratory to identify germline variants responsible for a provided clinic phenotype as is encountered in an undiagnosed disease scenario. In addition to analyzing the *in silico* mutagenized file to identify a genetic diagnosis for the provided clinical scenario, pathogenic or likely pathogenic ACMG secondary findings may also be reported.
- Laboratories must provide an exome sequencing data file (FASTQ or unaligned BAM) that has been generated using their current clinical sequencing protocols from one of the following sources: a specimen from the NGS - Germline program (see page 265) or from one of the NIST Reference Material cell lines: RM 8398 (NA12878), RM 8391, RM 8392, or RM 8393. Specimens from the NGSST and NGSHM programs or additional Coriell/NIST Reference Material cell lines cannot be used for this program.
- FASTQs or unaligned BAMs must be submitted along with a BED file describing the regions targeted and interrogated by your laboratory. Additionally, >90% of exons targeted and interrogated by your laboratory must have a minimum read coverage of 10X.
- Laboratories can transfer and download files from most modern browsers/operating systems. For the most up-to-date information on system requirements, go to cap.org and click **System Requirements**, located at the bottom of the home page.
- Due to the extremely large file sizes, a minimum allowable transfer speed of 40 Mbps or higher is needed to ensure successful transfer of your laboratory's sequencing files to the CAP. Contact your IT department for allowable transfer speeds to determine estimated transfer time and browser/operating system access.
- Laboratories must comply with all of the above requirements to participate in this program. Additional information and steps to provide your laboratory's exome file will be included in the kit materials.

Program Information

- One exome sequencing data file, originating from your laboratory and provided to the CAP, for *in silico* mutagenesis. The mutagenized exome sequencing data file is to be downloaded and analyzed by your bioinformatics pipeline
- The mutagenized exome sequencing file will be accompanied by a clinical history, relevant laboratory data, and results of ancillary studies, where appropriate
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

NEW

Next-Generation Sequencing Undiagnosed Disorders—Trio Analysis NGSET

Analyte/Procedure	Program Code	Challenges per Shipment
	NGSET	
Trio (parents and proband) exome analysis for germline undiagnosed disorders	▮	3

Additional Information/Minimum Requirements

- This *in silico* based program will assess the ability of the laboratory to identify germline variants responsible for a provided clinic phenotype in a proband as is encountered in an undiagnosed disease scenario using a trio approach (ie, laboratories will analyze the proband and parents in an effort to determine the diagnosis in the proband). In addition to analyzing the in silico mutagenized files to identify a genetic diagnosis for the provided clinical scenario, inheritance patterns as well as pathogenic or likely pathogenic ACMG secondary findings may also be reported.
- Laboratories must provide exome sequencing data files (FASTQs or unaligned BAMs) that have been generated using their current clinical sequencing protocols from one of the following Genome in a Bottle Consortium trio sources: the Ashkenazi Jewish trio (Coriell IDs GM24385, GM24149, and GM24143 or NIST RM8392) or the Han Chinese trio (Coriell IDs GM24631, GM24694, and GM24695). All exome files must be from the same trio (Ashkenazi Jewish or Han Chinese). Specimens from the NGS, NGSST, and NGSHM programs or additional Coriell/ Genome in a Bottle Consortium sources cannot be used for this program.
- FASTQs or unaligned BAMs must be submitted along with a BED file describing the regions targeted and interrogated by your laboratory. Additionally, >90% of exons targeted and interrogated by your laboratory must have a minimum read coverage of 10X.
- Laboratories can transfer and download files from most modern browsers/ operating systems. For the most up-to-date information on system requirements, go to cap.org and click **System Requirements**, located at the bottom of the home page.
- Due to the extremely large file sizes, a minimum allowable transfer speed of 40 Mbps or higher is needed to ensure successful transfer of your laboratory's sequencing files to the CAP. Contact your IT department for allowable transfer speeds to determine estimated transfer time and browser/operating system access.
- Laboratories must comply with all of the above requirements to participate in this program. Additional information and steps to provide your laboratory's exome files will be included in the kit materials.

Program Information

- Three exome sequencing data files (one from each parent plus the proband), originating from your laboratory and provided to the CAP, for *in silico* mutagenesis. The mutagenized exome sequencing data files are to be downloaded and analyzed by your bioinformatics pipeline
- The mutagenized exome sequencing files will be accompanied by a clinical history, relevant laboratory data, and results of ancillary studies, where appropriate
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Next-Generation Sequencing Bioinformatics Somatic Validated Materials NGSBV

Analyte/Procedure	Program Code	Challenges per Shipment
	NGSBV	
Somatic *in silico* mutagenized sequencing file	▮	1

Additional Information/Minimum Requirements

- This *in silico* program is designed to optimize bioinformatics pipelines, augment validations, and assist with pipeline verification after changes to NGS/bioinformatics processes. This is not traditional proficiency testing and no results will be returned to the CAP; information regarding the variants introduced will be sent along with the mutagenized file.
- Laboratories must provide a gene panel or exome sequencing data file (FASTQ or unaligned BAM) that has been generated using their current clinical sequencing protocols from one of the following sources: a specimen from the NGS - Germline program (see page 265) or from one of the following NIST Reference Material cell lines: RM 8398 (NA12878), RM 8391, RM 8392, or RM 8393. Specimens from the NGSST and NGSHM programs or additional Coriell/NIST Reference Material cell lines cannot be used for this program.
- FASTQs or unaligned BAMs must be submitted along with a BED file describing the regions targeted and interrogated by your laboratory.
- The mutagenized sequencing file will contain up to 75 somatic variants (depending on the size of the panel/exome provided) at allele fractions from 3% to 99% (higher allele fractions to mimic loss of heterozygosity or homozygosity) and will include:
  - o Single nucleotide variants
  - o Insertions, deletions, delins, and/or duplications ranging from 1-100bp (1-15bp, 15-50bp, 51-100bp)
  - o Microsatellite instability at mono nucleotide tracts included in the submitted capture design

  All variants will be modeled based on actual somatic mutations from the COSMIC and/or cBIOPORTAL databases.
- Laboratories can transfer and download files from most modern browsers/operating systems. For the most up-to-date information on system requirements, go to cap.org and click **System Requirements**, located at the bottom of the home page.
- Due to the extremely large file sizes, a minimum allowable transfer speed of 40 Mbps or higher is needed to ensure successful transfer of your laboratory's sequencing files to the CAP. Contact your IT department for allowable transfer speeds to determine estimated transfer time and browser/operating system access.
- Laboratories must comply with all of the above requirements to participate in this program. Additional information and steps to provide your laboratory's sequencing file will be included in the kit materials.

Program Information

- One panel or exome sequencing data file, originating from your laboratory and provided to the CAP, for *in silico* mutagenesis
- The mutagenized panel or exome sequencing data file is to be downloaded and analyzed by your laboratory bioinformatics pipeline and compared with the variant information provided by CAP
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Copy Number Variant—Solid Tumor CNVST

NEW

Procedure	Program Code	Challenges per Shipment
	CNVST	
Copy number variant—solid tumor	▮	1

Program Information

- One 20-µL gDNA (10ng/µL) specimen
- Two shipments per year

Additional Information

- This program is designed for laboratories using next-generation sequencing for copy number analysis.
- Laboratories will be asked to identify copy number alterations in some of these genes: CDKN2A, CDKN2B, EGFR, ERBB2, FGFR3, MET, MYC, MYCN, TP53.
- Copy number alterations tested will include amplification, gain, copy neutral loss of heterozygosity, and deletion.

Tumor Mutational Burden TMB

NEW

Procedure	Program Code	Challenges per Shipment
	TMB	
Tumor mutational burden	▮	1

Program Information

- One 10-µL gDNA (50ng/µL) specimen
- One 10-µL gDNA (50ng/µL) paired normal tissue
- Two shipments per year

Additional Information

- This program is intended for laboratories using next-generation sequencing to determine tumor mutational burden.
- This program is appropriate for laboratories using targeted panels and whole exome sequencing.
- Paired normal tissue is included.
- Samples are 50% tumor.

Molecular Oncology—Solid Tumors

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Microsatellite Instability (HNPCC) MSI

Procedure	Program Code	Challenges per Shipment
	MSI	
Microsatellite instability testing (DNA amplification)	▮	3
MLH1 promoter methylation analysis	▮	3

Laboratories performing DNA mismatch repair assessment by immunohistochemistry methods should see program MMR on page 298.

Program Information

- Three specimens each containing two 10.0-micron unstained paraffin section slides and one H&E slide
- For laboratories performing molecular testing using PCR and NGS
- Two shipments per year

IGHV Mutation Analysis IGHV

Analyte/Procedure	Program Code	Challenges per Shipment
	IGHV	
IGHV	▮	3

Additional Information

- Sequence analysis of the clonal immunoglobulin heavy chain V gene (*IGHV*) to determine somatic hypermutation (SHM) status.
- Any sequencing method may be used.
- Report productive/unproductive rearrangement, SHM status, percent similarity, and V-gene utilization.

Program Information

- Three 20-µg DNA specimens (200 ng/µL)
- Two shipments per year

In Situ Hybridization ISH, ISH2

Analyte/Procedure	Program Code		Challenges per Shipment
	ISH	ISH2	
Epstein-Barr virus (EBV)	▮		4
Human papillomavirus (HPV)	▮		4
Kappa/Lambda (IGK/IGL)	▮		4
HER2 (*ERBB2*) gene amplification (brightfield)		▮	10

Laboratories performing FISH for interphase chromosomal targets in paraffin sections refer to the Cytogenetics programs, page 253.

Program ISH2 is only for laboratories that perform both hybridization and interpretation under the same CLIA number.

Program Information

- ISH -

  EBV, HPV: Three 4-core tissue microarray slides and one H&E slide (each)

  Kappa/Lambda: Four 4-core tissue microarray slides and one H&E slide
- ISH2 - Two 5-core tissue microarray slides in duplicate
- Two shipments per year

DNA Extraction & Amplification FFPE MHO5

Procedure	Program Code	Challenges per Shipment
	MHO5	
DNA purification	▮	1

Methods-based proficiency challenge to examine DNA purification from formalin-fixed, paraffin-embedded tissues (FFPET). Laboratories will be able to purify DNA from FFPET sections and amplify control targets using laboratory-provided reagents.

Program Information

- Three 10.0-micron paraffin sections
- Two shipments per year

Neoplastic Cellularity NEO

Procedure	Program Code	Challenges per Shipment
	NEO	
Online assessment of percent neoplastic cellularity	▮	10

Program Information

- Ten Regions of Interests (ROIs) using online, whole slide images
- A method-based preanalytic program to assess competency for determining percent neoplastic cellularity
- Powered by DigitalScope® technology
- Individual reporting fields for up to five pathologists are available
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Sarcoma Fusion Gene SARC

Gene	Program Code	Challenges per Shipment
	SARC	
Sarcoma fusion gene*	▮	3

*See fusion gene listing below.

Laboratories performing FISH for sarcoma translocation refer to the Cytogenetics programs, page 253.

Program Information

- Three snap-frozen cell pellets from which approximately 5.0-µg of RNA can be extracted
- For laboratories performing molecular testing using RT-PCR and Nanostring
- Two shipments per year

Sarcoma Fusion Gene Listing

COL1A1/PDGFB, t(17;22)
ETV6/NTRK3, t(12;15)
EWSR1/ATF1, t(12;22)
EWSR1/ERG, t(21;22)
EWSR1/FLI1, t(11;22)
EWSR1/FLI1 or *EWSR1/ERG*
EWSR1/WT1, t(11;22)
FUS/DDIT3, t(12;16)
PAX3/FOXO1, t(2;13)
PAX7/FOXO1, t(1;13)
PAX3/FOXO1 or *PAX7/FOXO1*
SS18/SSX1, t(X;18)
SS18/SSX2, t(X;18)
SS18/SSX1 or *SS18/SSX2*

Cell-free Tumor DNA CFDNA

Analyte/Procedure	Program Code	Challenges per Shipment
	CFDNA	
cfDNA	▮	3

Additional Information

- DNA fragments stabilized in simulated plasma.
- This is not intended for laboratories that perform circulating tumor cell (CTC) analysis.
- Genes in this program include: *EGFR, BRAF, KRAS, NRAS, IDH1, PIK3CA, ERBB2, MET*, and *BRCA1*.
- This program includes variants present with a variant allele fraction (VAF) range of 0.1% - 3.0%.

Program Information

- Three 125-ng DNA (25 ng/mL) specimens
- Two shipments per year

Fusion RNA Sequencing RNA

Analyte/Procedure	Program Code	Challenges per Shipment
	RNA	
RNA	▮	3

Additional Information

- Total RNA from a cell line engineered to contain desired fusion RNA.
- This is for laboratories using RNAseq to detect gene fusion transcripts.
- This is not intended to replace the current program (SARC) for reverse transcription (RT)-PCR based detection (see page 273).
- Potential fusion variants include: *CD74-ROS1, EML4-ALK, ETV6-NTRK3, FGFR3-TACC3, PAX8-PPARG, SLC45A3-BRAF*.
- Specific intragenic fusion/exon skipping variants may also be included, specifically *EGFRvIII* and *MET* exon 14 skipping.

Program Information

- Three 500-ng RNA (20 ng/µL) specimens
- Two shipments per year

Solid Tumor—Other BRAF, EGFR, KRAS, KIT

Analyte	Program Code				Challenges per Shipment
	BRAF	EGFR	KRAS	KIT	
BRAF	▮				3
EGFR		▮			3
KRAS			▮		3
KIT				▮	3
PDGFRA				▮	3

Program Information

- BRAF, EGFR, KRAS - Paraffin-embedded sections or shavings
- KIT/PDGFRA -

  One specimen containing four 10.0-micron unstained paraffin section slides and one H&E slide

  Two 1.0-µg gDNA (50 ng/µL) specimens
- For laboratories performing molecular testing using PCR
- Two shipments per year

Multigene Tumor Panel MTP

Analyte	Program Code	Challenges per Shipment
	MTP	
BRAF	▮	3
EGFR	▮	3
HER2 (ERBB2)	▮	3
KIT	▮	3
KRAS	▮	3
NRAS	▮	3
PDGFRA	▮	3
PIK3CA	▮	3

CAP accredited laboratories that perform testing for the detection of somatic single nucleotide variants, insertions, and deletions in *BRAF, EGFR,* and *KRAS* are required to enroll in either MTP or the respective single gene programs. This includes laboratories that perform NGS-based assays, non-NGS-based multiplexed assays, and nonmultiplexed assays (eg, Sanger sequencing). Laboratories that perform NGS-based testing are encouraged to also enroll in NGSST (on page 265), as this proficiency testing program provides challenges with lower variant allele fractions as well as challenges in other genes commonly included in NGS-based panels for the identification of somatic variants in solid tumors.

Program Information

- Three 2.0-µg gDNA (50 ng/µL) specimens for laboratories performing molecular testing on multiple targets
- Two shipments per year

Glioma GLI

Analyte	Program Code	Challenges per Shipment
	GLI	
MGMT	▮	3
IDH1, IDH2	▮	3

Program Information

- Four 2.0-µg gDNA (50 ng/µL) specimens
- One specimen containing four 10.0-micron unstained paraffin section slides and one H&E slide
- For laboratories performing molecular testing using PCR
- Two shipments per year

Molecular Oncology—Hematologic

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Molecular Hematologic Oncology MHO, MHO1, MHO2, MHO3, MHO5

Procedure/Gene	Program Code			Challenges per Shipment
	MHO, MHO1	MHO2, MHO3	MHO5	
Lymphoid Malignancy Genotyping				
IGH	▮			3
IGH/BCL2 major	▮			3
IGH/BCL2 minor	▮			3
IGH/CCND1	▮			3
IGK	▮			3
TRB	▮			3
TRG	▮			3
Myeloid Malignancy Genotyping				
BCR/ABL1 p190		▮		3
BCR/ABL1 p210		▮		3
CALR		▮		3
CBFB/MYH11		▮		3
FLT3 ITD		▮		3
FLT3 TKD		▮		3
JAK2 c.1849G>T(p.V617F)		▮		3
MLL-PTD (*KMT2A*-PTD)		▮		3
MPL NEW		▮		3
NPM1		▮		3
PML/RARA		▮		3
RUNX1/RUNX1T1		▮		3
DNA extraction and amplification from formalin-fixed, paraffin-embedded (FFPE) tissue			▮	1

Program Information

- MHO - One sample vial containing purified DNA (200 µg/mL per vial) for each specimen
- MHO1 - MHO specimens in duplicate for additional DNA testing
- MHO2 - Two sample vials; one with purified DNA containing 200 µg/mL and one with purified RNA containing 400 µg/mL
- MHO3 - MHO2 specimen in duplicate for additional DNA and RNA testing
- MHO5 - Three 10.0-micron paraffin sections; extraction and amplification from FFPE tissue will be assessed by a method-based challenge
- Two shipments per year; ships on dry ice (dry ice does not apply to MHO5)

Minimal Residual Disease MRD, MRD1, MRD2

Analyte	Program Code			Challenges per Shipment
	MRD	MRD1	MRD2	
BCR/ABL1 p190		▮		3
BCR/ABL1 p210	▮			3
PML/RARA			▮	3

Program Information

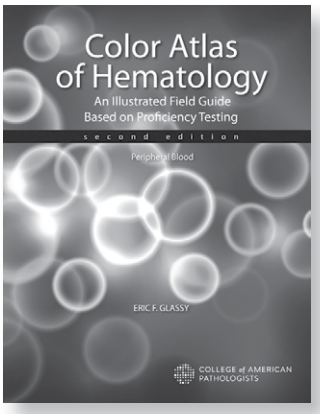
- MRD, MRD1, MRD2 - Three RNA specimens in sterile water
- For laboratories diagnosing and monitoring leukemia tumor burden by measuring the quantity of *BCR/ABL1* or *PML/RARA* fusion transcripts
- Two shipments per year; ships on dry ice

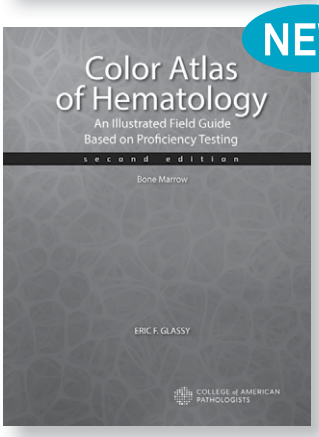
Color Atlas of Hematology—Peripheral Blood (PUB222)
Color Atlas of Hematology—Bone Marrow (PUB229)

The second edition of *Color Atlas of Hematology* has now expanded to two volumes, with the addition of bone marrow pathology.

Volume 1 presents keen insights into peripheral blood pathology. Link to 18 engaging videos. View 100+ peripheral blood smears online with DigitalScope® technology.

Volume 2 is a useful and instructional reference guide to bone marrow pathology. Explore the detailed "A Closer Look At..." sections. Access the links to interactive slide images.





Vol 1. Peripheral Blood
Item number: PUB222 Hardcover; 480 pages; 2018

Vol 2. Bone Marrow
Item number: PUB229 Hardcover; 370 pages; 2021

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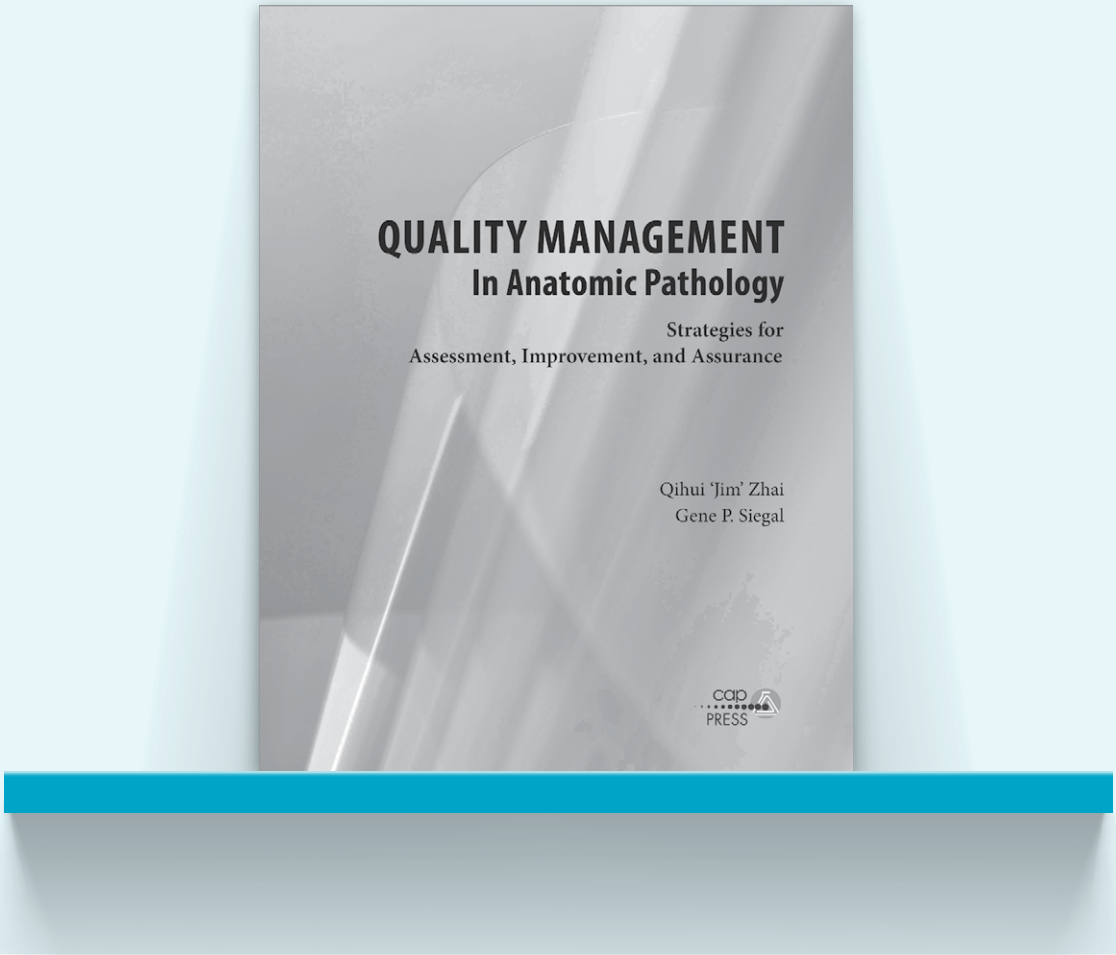
Your guide to develop, implement, and maintain a laboratory quality management plan.



Created specifically for the needs of the anatomic pathology laboratory, this comprehensive manual can help you develop, implement, and maintain a comprehensive quality program. Learn valuable tips for designing your own laboratory quality plan that documents regulatory compliance. Text includes cross-references to the CAP's Laboratory Accreditation Program checklists, Joint Commission standards, and CLIA '88.

Quality Management In Anatomic Pathology

Item number: PUB125

Softcover; 228 pages; 135+ figures and tables; 2017

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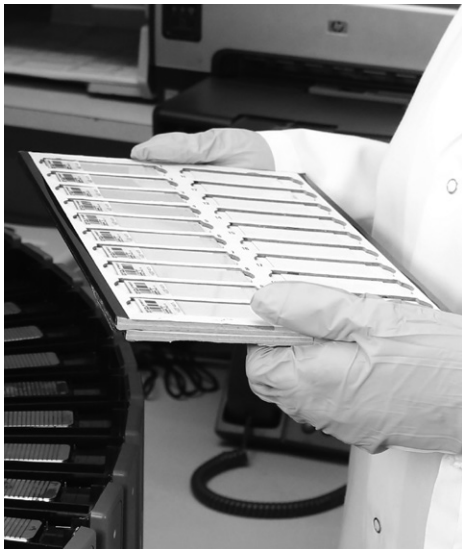
20 Anatomic Pathology



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- All slide sets are reviewed every six months by a staff cytotechnologist.
- Slides that do not maintain consensus grading are removed from the program and reviewed by a committee of pathologist experts.

Anatomic Pathology

New Programs NEW

Program Changes

Surgical Pathology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Online Performance Improvement Program in Surgical Pathology PIPW/PIPW1

Program	Program Code	Challenges per Shipment
	PIPW/PIPW1	
Surgical pathology case review	▮	10

Additional Information

PIPW educates pathologists in general surgical pathology.

- Pathologists can assess their diagnostic skills and compare their performance with that of their peers.
- Included PIPW case selections feature:
  - A variety of neoplastic and nonneoplastic lesions
  - Inflammatory and infectious diseases
  - Various sites, encompassing a variety of organ systems
- See system requirements on page 13.

Program Information

- PIPW - Ten diagnostic challenges/whole slide H&E images with clinical history; CME credit is available for one pathologist; for each additional pathologist, order PIPW1
- PIPW1 - Reporting option with CME credit for each additional pathologist (within the same institution); must order in conjunction with program PIPW
- Earn a maximum of 40 CME credits *(AMA PRA Category 1 Credits™)* per pathologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Powered by DigitalScope® technology
- Four online activities per year; your CAP shipping contact will be notified via email when the activity is available

Performance Improvement Program in Surgical Pathology PIP/PIP1

Program	Program Code	Challenges per Shipment
	PIP/PIP1	
Surgical pathology case review	▮	10

Additional Information

PIP educates pathologists in general surgical pathology. This program:

- Provides a practical approach to continuing education
- Gives pathologists a method to assess their diagnostic skills and compare their performance with that of their peers
- Allows you to experience smaller tumors and more interesting cases by providing two online cases per release
- Features PIP case selections that include:
  - A variety of neoplastic and nonneoplastic lesions
  - Inflammatory and infectious diseases
  - Various sites, encompassing a variety of organ systems

Program Information

- PIP - Ten diagnostic challenges with clinical history: eight H&E stained glass slides and two online only cases; CME credit is available for one pathologist; for each additional pathologist, order PIP1
- PIP1 - Reporting option with CME credit for each additional pathologist (within the same institution); must order in conjunction with program PIP
- Powered by DigitialScope technology
- Earn a maximum of 40 CME credits *(AMA PRA Category 1 Credits)* per pathologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Four shipments per year

CME credit

Professionalism in Pathology and Laboratory Medicine (PUB317)

Professionalism in Pathology and Laboratory Medicine provides a basic understanding of how ethics and professionalism impact pathology and laboratory medicine. Approaches and guidance to educational and assessment tools, including more than 100 case vignettes to guide discussion, are included. The book also discusses professionalism in the context of research, pathologist well-being and burnout, legal aspects, diversity, organizational leadership, and patient safety and quality of care. Also addressed are lapses in ethical and professional behavior as well as recommendations on future directions for research and education in professionalism.

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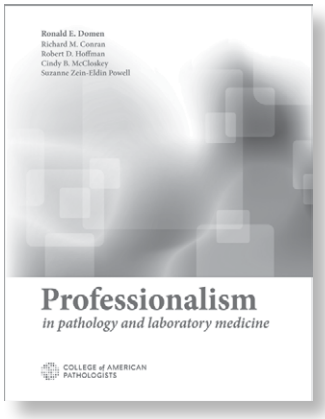

Item number: PUB317
Softcover; 146 pages; 2020

Virtual Biopsy Program VBP/VBP1

Program	Program Code	Challenges per Shipment
	VBP/VBP1	
Online biopsy case review	▮	5

Additional Information

- VBP educates pathologists to assess and improve their diagnostic skills in surgical pathology.
- This program is applicable to all pathologists, including general pathologists, and focuses on biopsy material. Cases may include gross, radiographic, or endoscopic images.
- There are four topical releases per year that focus on benign and malignant pathology. Cases are from selected organ systems and may include a variety of specimen types (eg, core biopsies, endoscopic biopsies, curettings, aspirate smears).
- See system requirements on page 13.

Program Information

- VBP - Five diagnostic challenges/whole slide images with clinical history; reporting with CME credit is available for one pathologist; for each additional pathologist, order VBP1
- VBP1 - Reporting option with CME credit for each additional pathologist (within the same institution); must order in conjunction with program VBP
- Earn a maximum of 25 CME credits *(AMA PRA Category 1 Credits)* per pathologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Powered by DigitalScope technology
- Four online activities per year; your CAP shipping contact will be notified via email when the activity is available

Digital Slide Program—Dermatopathology DPATH/DPATH1

Program	Program Code	Challenges per Shipment
	DPATH/DPATH1	
Online dermatopathology case review	▮	6

Additional Information

DPATH educates pathologists, dermatopathologists, and dermatologists to assess and improve their diagnostic skills in dermatopathology.

- Cases include static images.
- See system requirements on page 13.

Program Information

- DPATH - Six diagnostic challenges/whole slide images with clinical history; reporting with CME credit is available for one pathologist; for each additional pathologist, order DPATH1
- DPATH1 - Reporting option with CME credit for each additional pathologist (within the same institution); must order in conjunction with program DPATH
- Earn a maximum of 15 CME credits *(AMA PRA Category 1 Credits)* per pathologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Hematopathology Online Education HPATH/HPATH1

Program	Program Code	Challenges per Shipment
	HPATH/HPATH1	
Hematopathology online case review	▮	5

Additional Information

HPATH educates pathologists, hematopathologists, and hematologists with an interest in hematopathology to assess and improve their diagnostic skills in hematopathology.

- Clinical history and relevant laboratory data.
- At least one online, whole slide image of peripheral blood, bone marrow, spleen, lymph node, or other tissue.
- Results of ancillary studies such as immunohistochemistry, flow cytometry, FISH, karyotyping, and molecular studies, where appropriate.
- Case discussion and discussion of differential diagnoses.
- Each case includes assessment questions.
- See system requirements on page 13.

Program Information

- HPATH - Five diagnostic challenges/online, whole slide images with clinical history; reporting with CME credit is available for one pathologist/ hematologist; for additional pathologist/hematologist, order HPATH1
- HPATH1 - Reporting option with CME credit for each additional pathologist/ hematologist (within the same institution); must order in conjunction with program HPATH
- Earn a maximum of 12.5 CME credits (*AMA PRA Category 1 Credits™*) per pathologist and a maximum of 12.5 CE credits per hematologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Clinical Pathology Improvement Program (CPIP)

New for 2022: the new CPIP program mobile adaptive format lets you access cases when and where it's convenient to you. Keep your skills, and those of your department, up-to-date with interactive, case-based learning to address both common and esoteric issues faced in the laboratory.

CPIP supports pathologists who principally practice clinical pathology as well as those who do primarily anatomic pathology but cover clinical pathology. A diverse portfolio of real-life case scenarios, including images and clinical background, helps pathologists to stay abreast of issues and advances in the laboratory.

Designed by pathologists, for pathologists. Each case is developed and peer-reviewed, ensuring what you learn is practical and easily applied to your work. Thought provoking questions with feedback and multiple-choice knowledge checks allow you to assess and confirm your diagnostic skills. Participants may apply 1.25 CME credits for each CPIP toward the ABPath's Continuing Certification (CC) requirements.

Clinical Pathology Improvement Program CPIP/CPIP1

Program Name	Program Code	Cases per Year
	CPIP/CPIP1	
Online cases in clinical pathology	▮	12 (One per month. See below.)

Additional Information

Consider the CPIP program if you are a:

- Medical director seeking to continuously improve the clinical pathology knowledge and collective skills of your pathology team.
- Pathologist with clinical and/or laboratory management responsibilities.
- Pathologist seeking CME/CC credits in clinical pathology.
- Subspecialty clinical pathologist who needs to keep current.

Following is a list of our 2022 cases.*

Discipline	Case Schedule*	Month 2022
Microbiology	Reducing blood culture contamination	January
Laboratory Management	How to implement a critical value policy	February
Hematology	Aplastic anemia	March
Transfusion Medicine	Panagglutinin	April
Chemistry	CO poisoning	May
Microbiology	Interpretation of GI panels	June
Transfusion Medicine	O RBCs*	July
Chemistry	Amenorrhea*	August
Hematology	Plasma cell neoplasms	September
Laboratory Management	Instrument correlations*	October
Laboratory Management	Ethics and professionalism*	November
Molecular Pathology	Preanalytic factors for molecular testing	December

*Subject to change

To learn more visit cap.org and search CPIP.

Program Information

- CPIP - One online clinical laboratory case per month
- CPIP1 - Additional Pathologist (within the same institution) reporting option with CME credit; must order in conjunction with CPIP
- Earn a maximum of 15 CME credits *(AMA PRA Category 1 Credits)* per year
- Twelve cases per year; your CAP shipping contact will be notified via email when the activity is available

Touch Imprint/Crush Preparation TICP/TICP1

Procedure	Program Code	Challenges per Shipment
	TICP/TICP1	
Online slide and image program in rapid assessment case review	▮	4

Additional Information

- The TICP program is designed to familiarize surgical pathologists, cytopathologists, and cytotechnologists with the cytomorphologic features of pathologic processes and tumors in touch imprints and crush or scrape preparations. These specimens are prepared either for intraoperative consultation (frozen section) or rapid on-site evaluation (ROSE) of tissue biopsies for adequacy and/or interpretation. Participants will learn to make an immediate adequacy assessment, assign the process to a general category, and triage the specimen to appropriate ancillary studies. Participants will review digital whole slides of the TICP preparations (hematoxylin & eosin, modified Wright-Giemsa, and/or Papanicolaou stains), static images of the preparation and ancillary studies, and clinical history/radiographic findings to reach a diagnosis. Each case has a complete description of entities in the differential diagnosis along with a discussion of the correct interpretation.
- Participants will receive immediate feedback on interpretations, ancillary studies, and case-related adequate assessment.
- The cases will focus on TICP lung and adrenal tumors.
- May include rarely captured cases that may not be available on the glass slide.
- See system requirements on page 13.

Program Information

- TICP - Four online assessment challenges with clinical history; TICP provides CME or CE credit for one pathologist or cytotechnologist; for each additional pathologist or cytotechnologist, order TICP1
- TICP1 - Reporting option with CME or CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with program TICP
- Earn a maximum of 10 CME credits (*AMA PRA Category 1 Credits*) per pathologist and a maximum of 10 CE credits per cytotechnologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Online, whole slide images powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

CAP/NSH HistoQIP HQIP

Stain/Tissue	Program Code	Challenges per Shipment	
	HQIP	A	B
H&E – Prostate resection	▮	1	
H&E – Spleen resection	▮	1	
IHC – TTF1, lung adenocarcinoma resection	▮	1	
IHC – *H. pylori,* stomach biopsy	▮	1	
Special Stain – Trichrome, liver biopsy	▮	1	
H&E – Thyroid resection	▮		1
H&E – Salivary gland resection	▮		1
IHC – OCT 3/4 seminoma	▮		1
IHC – CK7, breast carcinoma	▮		1
Special Stain – AFB, control material, tissue (no culture)	▮		1

HistoQIP improves the preparation of histologic slides in all anatomic pathology laboratories. In this educational program, participants will receive an evaluation specific to their laboratory and a participant summary that includes peer comparison data, evaluators' comments, and performance benchmarking data. An expert panel of pathologists, histotechnologists, and histotechnicians will evaluate submitted slides for histologic technique using uniform grading criteria.

Program Information

- Participant laboratories may submit up to five stained coverslipped glass slides (one from each category) per mailing
- Includes photographs
- Two shipments per year

NSH.ORG

Prepare for board exams with Surgical Pathology Review.

Instructional texts for surgical pathology mostly offer either high-level theoretical concepts or detailed practical guides, but not both. *Surgical Pathology Review* bridges this knowledge gap that, when filled, develops the pathologist into a fully developed diagnostician and prepares him or her for the successful completion of board examinations.

- Organized by organ system and specific lesions
- Presents nonmorphologic, hard-to-remember facts associated with each lesion
- Describes prototypical morphologic features of each lesion with accompanying high-quality images of the uncommonly encountered ones.
- Reviews details relevant to surgical pathology and cytopathology

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Item number: PUB130
Softcover; 488 pages; 2000+ images; 2020

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

CAP/NSH HistoQIP Central Nervous System IHC HQNEU

Stain/Tissue	Program Code	Challenges per Shipment	
	HQNEU	A	B
H&E – Pituitary adenoma	▮	1	
IHC – Growth hormone (GH), pituitary adenoma	▮	1	
IHC – Prolactin, pituitary adenoma	▮	1	
H&E – Hemagioblastoma	▮	1	
IHC – Hemagioblastoma, Inhibin	▮	1	
H&E – Medulloblastoma	▮		1
IHC – Synaptophysin, medulloblastoma	▮		1
IHC – Ki-67, medulloblastoma	▮		1
H&E – Atypical teratoid/rhabdoid tumor (ATRT)	▮		1
IHC – INI-1, ATRT	▮		1

This program augments efforts to improve the preparation of H&E and immunohistochemical slides in all anatomic pathology laboratories involved in the handling of central nervous system gliomas.

Program Information

- Participants may submit up to three IHC and two H&E stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

CAP/NSH HistoQIP In Situ Hybridization (HPV/EBV) HQISH

Stain/Tissue	Program Code	Challenges per Shipment	
	HQISH	A	B
H&E – Cervical biopsy	▮	1	
ISH – DNA/RNA negative control probe ISH	▮	1	
ISH – DNA/RNA positive control probe ISH	▮	1	
ISH – Human Papilloma virus (HPV) ISH (HPV probe, ISH)	▮	1	
H&E – Epstein-Barr virus (EBV), positive lymphoma	▮		1
ISH – DNA/RNA negative control probe ISH	▮		1
ISH – DNA/RNA positive control probe ISH	▮		1
ISH – EBV ISH (EBV probe, ISH)	▮		1

This program augments efforts to improve the preparation of ISH slides in all anatomic pathology laboratories involved in the handling of specimens undergoing analysis for HPV and EBV detection by chromogenic in situ hybridization.

Program Information

- Participants are to submit an H&E, positive and negative reagent control slides and HPV and EBV DNA/RNA ISH stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

CAP/NSH HistoQIP Melanoma IHC HQMEL

Stain/Tissue	Program Code	Challenges per Shipment	
	HQMEL	A	B
H&E – Melanoma, skin biopsy	■	1	
IHC – Melan-A/MART-1, melanoma skin biopsy	■	1	
IHC – SOX10 melanoma skin biopsy	■	1	
H&E – PD-L1 (PD-L1 positive melanoma)	■	1	
IHC – PD-L1 (PD-L1 positive melanoma)	■	1	
H&E – Melanoma skin resection	■		1
IHC – S100 melanoma skin resection	■		1
IHC – HMB-45 melanoma skin resection	■		1
H&E – Melanoma skin resection	■		1
IHC – CD8 melanoma skin resection	■		1

This program augments efforts to improve the preparation of H&E and immunohistochemical slides in all anatomic pathology laboratories involved in the handling of skin specimens containing melanoma.

Program Information

- Participants may submit up to three IHC and two H&E stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

Grossing, Staging, and Reporting: An Integrated Manual of Modern Surgical Pathology (PUB131)

Gross dissection is the first step in analyzing a resection specimen. *Grossing, Staging and Reporting* presents a standardized approach for practicing pathologists, pathologists-in-training, and pathologists' assistants who handle specimens. This manual is organized by organ system and incorporates AJCC staging criteria and elements of the CAP cancer protocols.

Topics covered:

- Indications for procedures
- Expected macroscopic and microscopic findings
- Step-by-step dissection techniques
- Potential staging pitfalls and solutions
- Sample reporting templates

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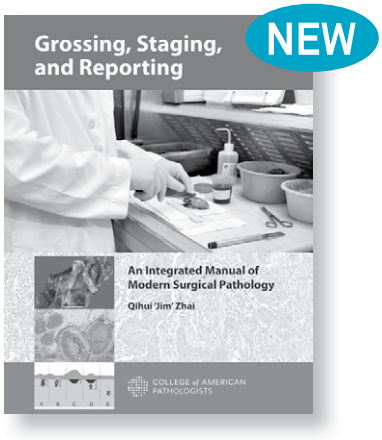

Item number: PUB131
Softcover; 288 pages; 2021

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

CAP/NSH HistoQIP Whole Slide Image Quality Improvement Program HQWSI

Stain/Tissue	Program Code	Challenges per Shipment	
	HQWSI	A	B
H&E – Liver resection	▮	1	
H&E – Endometrial biopsy	▮	1	
PAS – Kidney resection	▮	1	
CD20 – Tonsil resection	▮	1	
H&E – Skin excision	▮		1
H&E – Cervical biopsy	▮		1
GMS – Control tissue	▮		1
ER – Breast needle core biopsy	▮		1

The HQWSI program provides feedback to laboratories using whole slide imaging for clinical applications. Participants upload their scanned whole slide images to the CAP designated server. An expert panel of pathologists, histotechnicians, and histotechnologists evaluates image and histologic quality using uniform grading criteria. Participants will receive an evaluation and a participant summary, as well as annotated feedback directly on their uploaded images.

Program Information

- Participant laboratories may submit up to four stained coverslipped glass slides and corresponding scanned whole slide images per mailing
- Online, whole slide images powered by DigitalScope technology
- Two shipments per year

NSH.ORG

Learn the secret to good slide technique.

Histologic Preparations: Common Problems and Their Solutions is a how-to guide to good slide preparation. Building on data and images from the CAP/NSH HistoQIP program, the book presents photographic examples of well-prepared slides followed by numerous examples of associated problems and their solutions. The text contains troubleshooting techniques for the most common artifacts and problems incurred in routine histologic preparations, including fixation and processing; microtomy; frozen sections; hematoxylin-eosin, trichrome, reticulin, elastin, basement membrane, mucin, amyloid, immunohistochemical, and Gram stains, along with mycobacteria, *Helicobacter pylori*, spirochetes, and fungi.

Add Histologic Preparations: Common Problems and Their Solutions (PUB123) to your order. Or, view sample pages and purchase online:

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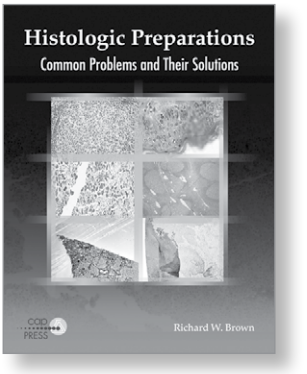

Item number: PUB123
Softcover; 168 pages; 300+ photomicrographs, figures, and tables; 2009

Anatomic Pathology

20

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

CAP/NSH HistoQIP—IHC Series HQIHC

Stain/Tissue	Program Code	Challenges per Shipment	
	HQIHC	A	B
IHC – CDX2, colon carcinoma	■	1	
IHC – CK7, pancreas resection	■	1	
IHC – p504s/AMACR, prostate carcinoma	■	1	
IHC – Cyclin D1, mantle cell lymphoma	■	1	
IHC – CD117, appendix resection GIST (gastrointestinal stromal tumors)	■	1	
IHC – Chromogranin, appendix resection	■		1
IHC – Melan-A/MART-1, adrenal gland resection	■		1
IHC – *H. pylori,* stomach biopsy	■		1
IHC – PAX8, renal cell carcinoma	■		1
IHC – e-Cadherin, breast ductal carcinoma	■		1

HistoQIP—IHC improves the preparation of immunohistochemistry slides in all anatomic laboratories involved in the handling of a broad range of surgical specimens. Participants will receive an evaluation specific to their laboratory and a participant summary. An expert panel of pathologists, histotechnologists, and histotechnicians will evaluate submitted slides for histologic technique using uniform grading criteria.

Program Information

- Participant laboratories may submit up to five stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

CAP/NSH HistoQIP Mismatch Repair IHC HQMMR

Stain/Tissue	Program Code	Challenges per Shipment	
	HQMMR	A	B
H&E – Colon adenocarcinoma	■	1	
IHC – MLH1, colon adenocarcinoma	■	1	
IHC – MSH2, colon adenocarcinoma	■	1	
IHC – MSH6, colon adenocarcinoma	■	1	
IHC – PMS2, colon adenocarcinoma	■	1	
H&E – Endometrial adenocarcinoma	■		1
IHC – MLH1, endometrial adenocarcinoma	■		1
IHC – MSH2, endometrial adenocarcinoma	■		1
IHC – MSH6, endometrial adenocarcinoma	■		1
IHC – PMS2, endometrial adenocarcinoma	■		1

This program augments efforts to improve the preparation of H&E and immunohistochemical slides in all anatomic pathology laboratories involved in the handling of colonic and endometrial tumors performing mismatch repair IHC.

Program Information

- Participants may submit up to four IHC and one H&E stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

CAP/NSH HistoQIP Non-small Cell Lung Carcinoma IHC HQNSC

Stain/Tissue	Program Code	Challenges per Shipment	
	HQNSC	A	B
H&E – Lung adenocarcinoma	■	1	
IHC – TTF-1, lung adenocarcinoma	■	1	
IHC – Napsin-A, lung adenocarcinoma	■	1	
H&E – ALK, positive lung adenocarcinoma	■	1	
IHC – ALK, positive lung adenocarcinoma	■	1	
H&E – Lung squamous cell carcinoma	■		1
IHC – p40/p63, lung squamous cell carcinoma	■		1
IHC – CK5 or CK5/6, lung squamous cell carcinoma	■		1
H&E – PD-L1, positive lung squamous cell carcinoma	■		1
IHC – PD-L1, positive lung squamous cell carcinoma	■		1

This program augments efforts to improve the preparation of H&E and immunohistochemical slides in all anatomic pathology laboratories involved in the handling of non-small cell lung carcinoma.

Program Information

- Participants may submit up to three IHC and two H&E stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

CAP/NSH HistoQIP Biopsy Series HQIPBX

Stain/Tissue	Program Code	Challenges per Shipment	
	HQIPBX	A	B
H&E – Bladder biopsy	■	1	
H&E – Cervical biopsy	■	1	
H&E – Skin punch biopsy	■	1	
H&E – Stomach biopsy	■	1	
H&E – Colon biopsy	■		1
H&E – Endometrial biopsy	■		1
H&E – Prostate needle biopsy	■		1
H&E – Breast core biopsy	■		1

The HistoQIP Biopsy Series is an additional program to improve the preparation of histologic slides in all anatomic pathology laboratories. Participants will receive an evaluation specific to their laboratory and a participant summary. An expert panel of pathologists, histotechnologists, and histotechnicians will evaluate submitted slides for histologic technique using uniform grading criteria.

Program Information

- Participants may submit up to four H&E stained and coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

CAP/NSH HistoQIP Specialty Series HQBX1, HQBX2, HQBX3, HQBX4

Stain/Tissue	Program Code				Challenges per Shipment	
	HQBX1	HQBX2	HQBX3	HQBX4	A	B
Gastrointestinal Biopsy Module						
H&E – Colon biopsy	▮				1	1
H&E – Esophageal biopsy	▮				1	1
H&E – Small intestinal biopsy	▮				1	1
H&E – Stomach biopsy	▮				1	1
Dermatologic Biopsy Module						
H&E – Alopecia biopsy		▮			1	1
H&E – Skin excisional biopsy (large excision)		▮			1	1
H&E – Skin punch biopsy		▮			1	1
H&E – Skin shave biopsy		▮			1	1
Urogenital Tract Biopsy Module						
H&E – Bladder biopsy (nonneoplastic)			▮		1	1
H&E – Bladder biopsy (with urothelial carcinoma)			▮		1	1
H&E – Prostate needle biopsy (nonneoplastic)			▮		1	1
H&E – Prostate needle biopsy (with carcinoma)			▮		1	1
Gynecological Biopsy Module						
H&E – Cervical biopsy				▮	1	1
H&E – Endometrial biopsy				▮	1	1
H&E – Cervical cone/LEEP biopsy				▮	1	1
H&E – Vaginal biopsy				▮	1	1

The HistoQIP Specialty Series includes modules to improve the preparation of histologic slides in all anatomic pathology laboratories involved in the handling of gastrointestinal, dermatologic, urogenital tract, and gynecologic biopsies. Participants will receive an evaluation specific to their laboratory and a participant summary. An expert panel of pathologists, histotechnologists, and histotechnicians will evaluate submitted slides for histologic technique using uniform grading criteria.

Program Information

- HQBX1, HQBX2, HQBX3, HQBX4 - Participants may submit up to four H&E stained and coverslipped glass slides (one from each category) per mailing
- Two shipments per year

NSH.ORG

HistoQIP IHC programs assess preanalytic steps. For immunohistochemistry programs that focus on analytic and postanalytic (interpretive) steps, see the immunohistochemistry programs on pages 296-299.

General Immunohistochemistry

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Immunohistochemistry MK

Procedure	Program Code	Challenges per Shipment
	MK	
Immunohistochemistry	▮	16

The MK program allows laboratories to compare their assay methodology and results with all participating laboratories.

Program Information

- Five glass slides with unstained tissue sections from four separate cases; each case includes four slides for selected IHC markers and one slide for H&E
- Two shipments per year

CD117 Immunohistochemistry Tissue Microarray PM1

Analyte	Program Code	Challenges per Shipment
	PM1	
CD117	▮	10

For ER/PgR testing, see the PM2 program on page 296.

Program Information

- One 10-core tissue microarray slide
- One shipment per year

Immunohistochemistry Tissue Microarray Series PM5

Analyte	Program Code	Challenges per Shipment
	PM5	
INSM1	▮	10
Non-breast/non-gastroesophageal HER2	▮	10

Each year, the PM5 program will feature two different markers for immunohistochemistry laboratories to evaluate assay performance on a variety of tissue and/or tumor types. The IHC markers for this program may change from those listed above due to development constraints.

Program Information

- Two 10-core tissue microarray slides, one for INSM1 and one for HER2
- One shipment per year

These general immunohistochemistry programs assess analytic and postanalytic (interpretive) steps. For programs focusing on preanalytic steps, see the HistoQIP IHC programs on pages 287-293.

NEW

p53 Immunohistochemistry Tissue Microarray P53

Analyte	Program Code	Challenges per Shipment
	P53	
p53	▮	10

The purpose of this program is to assess the laboratory's ability to detect various patterns of p53 staining, which is diagnostically useful in several tumor types.

Program Information

- One 10-core tissue microarray slide
- Two shipments per year

Dermatopathology Immunohistochemistry DPIHC

Procedure	Program Code	Challenges per Shipment
	DPIHC	
Dermatopathology	▮	8

This case-based program assesses the laboratory's ability to perform and interpret immunostains commonly used in dermatopathology practice.

Program Information

- Six glass slides with unstained tissue sections from two separate cases; each case includes four slides for selected IHC markers, one slide for H&E, and one slide for negative control
- Two shipments per year

CAP/ACMG *HER2* Gene Amplification by FISH, Interpretation Only CYHI

Analyte/Procedure	Program Code	Challenges per Shipment
	CYHI	
HER2 gene amplification in breast cancer, interpretation only	▮	3

Additional Information

- *HER2* Gene Amplification by FISH, Interpretation Only, is an exercise and is not considered proficiency testing. This exercise may be used to meet the requirements for alternative assessment.
- This program is for laboratories that perform interpretation only for HER2 FISH for breast cancer.
- For laboratories that perform both hybridization and interpretation for HER2 FISH for breast cancer under the same CLIA number, see page 253.

Program Information

- Three online, educational interpretation challenges; your CAP shipping contact will be notified via email when the activity is available
- Two shipments per year

ACMG American College of Medical Genetics and Genomics Translating Genes into Health®

These general immunohistochemistry programs assess analytic and postanalytic (interpretive) steps. For programs focusing on preanalytic steps, see the HistoQIP IHC programs on pages 287-293.

Immunohistochemistry Predictive Markers

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

HER2 Immunohistochemistry HER2

Analyte	Program Code	Challenges per Shipment
	HER2	
HER2	▮	20

Program Information
- Two 10-core tissue microarray slides
- Two shipments per year

The HER2 program fulfills the proficiency testing requirement stated in the ASCO/CAP HER2 Testing Guideline. Due to the unique nature of these human, donor-based materials, the shipping date is subject to change. If this should occur, the CAP will provide notification prior to the originally scheduled shipping date.

Gastric HER2 GHER2

Analyte	Program Code	Challenges per Shipment
	GHER2	
HER2	▮	10

Program Information
- One 10-core tissue microarray slide
- Two shipments per year

Additional Information
- The Gastric HER2 program fulfills the proficiency testing requirement stated in the CAP/ASCP/ASCO Gastroesophageal HER2 Testing Guideline.
- The interpretive criteria for HER2 immunohistochemistry performed on gastroesophageal adenocarcinomas differs significantly from breast carcinoma. The GHER2 program will help participating laboratories understand these differences.

ER/PgR Immunohistochemistry Tissue Microarray PM2

Analyte	Program Code	Challenges per Shipment
	PM2	
Estrogen receptor (ER)	▮	20
Progesterone receptor (PgR)	▮	20

Program Information
- Four 10-core microarray slides, two for ER and two for PgR
- Two shipments per year

The PM2 program fulfills the ER proficiency testing requirement and the PgR alternative assessment requirement stated in the ASCO/CAP ER/PgR Testing Guideline. Due to the unique nature of these human, donor-based materials, the shipping date is subject to change. If this should occur, the CAP will provide notification prior to the originally scheduled shipping date.

These general immunohistochemistry programs assess analytic and postanalytic (interpretive) steps. For programs focusing on preanalytic steps, see the HistoQIP IHC programs on pages 287-293.

CD20 Immunohistochemistry Tissue Microarray PM3

Analyte	Program Code	Challenges per Shipment
	PM3	
CD20	▮	10

Program Information
- One 10-core tissue microarray slide
- Two shipments per year

For ER/PgR testing, see the PM2 program on page 296.

Highly Sensitive Anaplastic Lymphoma Kinase IHC PM6

Analyte	Program Code	Challenges per Shipment
	PM6	
Highly sensitive anaplastic lymphoma kinase IHC (ALK)	▮	10

Program Information
- One 10-core tissue microarray slide
- Two shipments per year

This program assesses the laboratory's ability to detect ALK-rearranged lung cancers using highly sensitive ALK immunohistochemistry. The ALK1 clone is NOT highly sensitive and should not be used in this program.

BRAF V600E BRAFV

Analyte	Program Code	Challenges per Shipment
	BRAFV	
BRAF V600E	▮	10

Program Information
- One 10-core tissue microarray slide
- Two shipments per year

The purpose of this program is to assess the laboratory's ability to detect BRAF V600E mutant tumors using mutation-specific immunohistochemistry.

CD30 Immunohistochemistry Tissue Microarray CD30

Analyte	Program Code	Challenges per Shipment
	CD30	
CD30	▮	10

Program Information
- One 10-core tissue microarray slide
- Two shipments per year

This program assesses the laboratory's ability to detect CD30 expression in lymphomas, which has emerged as a key therapeutic target.

These general immunohistochemistry programs assess analytic and postanalytic (interpretive) steps. For programs focusing on preanalytic steps, see the HistoQIP IHC programs on pages 287-293.

DNA Mismatch Repair MMR

Procedure	Program Code	Challenges per Shipment
	MMR	
MLH1 by IHC	▮	10
MSH2 by IHC	▮	10
MSH6 by IHC	▮	10
PMS2 by IHC	▮	10

If your laboratory performs DNA mismatch repair by molecular methods, see the MSI program on page 272.

Program Information

- Four unstained cell line/tissue microarray slides for the immunohistochemical analysis of DNA mismatch repair proteins MLH1, MSH2, MSH6, and PMS2
- Two shipments per year

PD-L1 Immunohistochemistry PDL1

Analyte	Program Code	Challenges per Shipment
	PDL1	
PD-L1	▮	10

The purpose of this program is to assess the laboratory's ability to detect PD-L1 expression and apply various PD-L1 scoring systems.

Program Information

- One 10-core tissue microarray slide; additional slide provided for H&E
- Two shipments per year

Medical Kidney Diseases: Morphology-Based Novel Approach to Renal Biopsy (PUB129)

This book offers concise yet comprehensive information for practicing pathologists, pathology residents, and nephrology fellows. It presents a simple and practical approach to renal biopsy by providing a pertinent differential diagnosis related to various patterns of injuries involving renal parenchyma by light microscopy, reaching a correct diagnosis by assimilating immunofluorescence and electron microscopy findings. The book is divided into sections on glomerular, vascular, tubulointerstitial, and transplant renal pathology.

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- ebooks at ebooks.cap.org

Item number: PUB129
Softcover; 92 pages; 245+ photomicrographs, exhibits, and tables; 2019

These general immunohistochemistry programs assess analytic and postanalytic (interpretive) steps. For programs focusing on preanalytic steps, see the HistoQIP IHC programs on pages 287-293.

Immunohistochemistry Prognostic Markers

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

c-Myc/Bcl-2 Immunohistochemistry Tissue Microarray MYCB

Analyte	Program Code	Challenges per Shipment
	MYCB	
c-Myc	▮	10
Bcl-2	▮	10

This program assesses the laboratory's ability to detect c-Myc and Bcl-2-positivity in large B-cell lymphomas, which have emerged as critical prognostic markers.

Program Information

- Two 10-core tissue microarray slides, one for c-Myc and one for Bcl-2
- Two shipments per year

p16 Immunohistochemistry Tissue Microarray P16

Analyte	Program Code	Challenges per Shipment
	P16	
p16	▮	10

This program assesses the laboratory's ability to detect p16 overexpression in squamous cell carcinomas, mainly as a surrogate for HR-HPV detection in head and neck tumors.

Program Information

- One 10-core tissue microarray slide
- Two shipments per year

Ki-67 Immunohistochemistry Tissue Microarray KI67

Procedure	Program Code	Challenges per Shipment
	KI67	
Ki-67	▮	10

The purpose of this program is to assess the laboratory's ability to accurately quantify the Ki-67 proliferation index, which is prognostically significant and emerging as a predictive marker.

Program Information

- One 10-core cell line tissue microarray slide
- Two shipments per year

These general immunohistochemistry programs assess analytic and postanalytic (interpretive) steps. For programs focusing on preanalytic steps, see the HistoQIP IHC programs on pages 287-293.

Specialty Anatomic Pathology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Autopsy Pathology AUP/AUP1

Procedure	Program Code	Challenges per Shipment
	AUP/AUP1	
Autopsy online case analysis	▮	5

Each case includes case description, gross and/or microscopic images, and case discussion with sample death certificate, key teaching points, and current references.

Program Information

- AUP - Online activity providing five cases; reporting with CME or CE credit is available for one pathologist or pathologists' assistant; for each additional pathologist/pathologists' assistant, order AUP1
- Includes the option to download program content
- AUP1 - Reporting option with CME or CE credit for each additional pathologist or pathologists' assistant (within the same institution); must order in conjunction with program AUP
- Earn a maximum of 12.5 CME credits *(AMA PRA Category 1 Credits)* per pathologist and a maximum of 12.5 CE credits per pathologists' assistant for completion of entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Online, whole slide images powered by DigitalScope technology (if available)
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Neuropathology Program NP/NP1

Program	Program Code	Challenges per Shipment
	NP/NP1	
Neuropathology online case review	▮	8

The Neuropathology Program helps anatomic pathologists, neuropathologists, and trainees assess and improve their diagnostic skills and learn about new developments in neuropathology. Each shipment of this educational program includes eight cases that cover the spectrum of neoplastic and nonneoplastic disorders affecting the central and peripheral nervous systems, including infectious, degenerative, developmental, demyelinating, traumatic, toxic-metabolic, vascular, and neuromuscular diseases. In addition, each mailing will include a mini-symposium that focuses on a specific problem area in neuropathology, which relates to at least four of the eight cases.

Program Information

- NP - Online activity providing eight cases and a mini-symposium; reporting with CME credit is available for one pathologist; for each additional pathologist, order NP1
- Includes option to download program content
- NP1 - Reporting option with CME credit for each additional pathologist (within the same institution); must order in conjunction with program NP
- Earn a maximum of 10 CME credits *(AMA PRA Category 1 Credits)* per pathologist
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

CME credit

Atlas of Fundamental Infectious Diseases Histopathology (PUB127)

Using real-world examples, this invaluable guide provides anatomic pathologists the tools necessary to identify infectious organisms in tissue.

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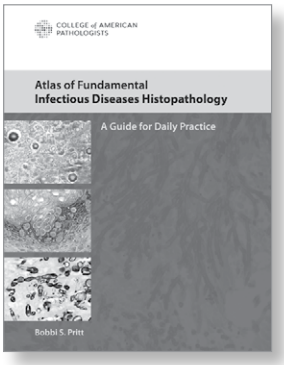


Item number: PUB127
Softcover; 304 pages;
800+ images and tables; 2018

Cytopathology

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Glass Slide Gynecologic Cytopathology PT Program with Glass Slide PAP Education PAP PT

Slide Type	Program Code					Challenges per Year	
	PAPCPT	PAPKPT	PAPMPT	PAPLPT	PAPJPT	Proficiency Testing	Education
Conventional	▮				▮	10	10
SurePath		▮		▮	▮		
ThinPrep			▮	▮	▮		
Individual Participant Response Form	APAPCPT	APAPKPT	APAPMPT	APAPLPT	APAPJPT		

Ordering Information

You will receive one shipment for proficiency testing (10 slides) and two additional shipments for your education (five slides each).

Follow these steps to order your PAP Proficiency Testing and PAP Education:

1. Choose the following:
   a. Slide type program code (refer to table above)
   b. PAP Education series shipment dates (choose one)
      - Series 1
        - A mailing ships February
        - B mailing ships August
      - Series 2
        - A mailing ships May
        - B mailing ships November
   c. Add the PAP Education series number after the slide type program code (eg, PAPCPT1, PAPCPT2).
2. Order one Individual Participant Response Form code for each participating pathologist/cytotechnologist. Also include the PAP Education Series number after the program code (eg, APAPCPT1).
3. Select primary testing session option with two alternative date options using the Gynecologic Cytology Proficiency Testing Order Details Form.
4. PPTENR is required by CMS as verification that personnel required to participate in PAP PT under its CLIA number are taking the examination at another laboratory.

Additional Information

- Participants will receive an evaluation via email shortly after submitting results online.
- The PAP Education component meets the CAP Laboratory Accreditation Program requirement for participation in a peer educational program.

Program Information

- Ten glass slides for proficiency testing and ten glass slides for education
- APAPCPT/APAPKPT/APAPMPT/APAPLPT/APAPJPT - Reporting option with CME or CE credit for each pathologist/cytotechnologist (within the same institution); must order in conjunction with program PAPCPT/PAPKPT/PAPMPT/PAPLPT/PAPJPT
- Earn a maximum of 8 CME credits (*AMA PRA Category 1 Credits*) per pathologist and a maximum of 8 CE credits per cytotechnologist for completing all challenges
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Three shipments per year; one shipment for proficiency testing (10 slides) and two shipments for education (five slides each)

Cytopathology Glass Slide Education Program PAPCE, PAPJE, PAPKE, PAPLE, PAPME Series 1 or 2

Slide Type	Program Code					Education Challenges per Year
	PAPCE	PAPKE	PAPME	PAPLE	PAPJE	
Conventional	▮				▮	10
SurePath		▮		▮	▮	
ThinPrep			▮	▮	▮	
Individual Participant Response Form	APAPCE	APAPKE	APAPME	APAPLE	APAPJE	

Ordering Information

Follow these steps to order your PAP Education:

1. Choose the following:
   a. Slide type program code (refer to table above)
   b. PAP Education series shipment dates (choose one)
      - Series 1
        - A mailing ships February
        - B mailing ships August
      - Series 2
        - A mailing ships May
        - B mailing ships November
   c. Add the PAP Education series number after the slide type program code (eg, PAPCE1, PAPCE2).
2. Order one Individual Participant Response Form code for each participating pathologist/cytotechnologist. Also include the PAP Education series number after the program code (eg, APAPCE1).

Additional Information

- Participants will receive an evaluation via email shortly after submitting results online.
- The PAP Education component meets the CAP Laboratory Accreditation Program requirement for participation in a peer educational program.

Program Information

- Ten glass slides for education
- APAPCE/APAPJE/APAPKE/APAPLE/APAPME - Reporting option with CME or CE credit for each pathologist/cytotechnologist (within the same institution); must order in conjunction with program PAPCE/PAPJE/PAPKE/PAPLE/PAPME
- Earn a maximum of 8 CME credits (*AMA PRA Category 1 Credits*) per pathologist and a maximum of 8 CE credits per cytotechnologist for completing all challenges
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Two shipments (five slides each)

CME CE credit

Gynecologic Cytology Outcomes: Biopsy Correlation Performance QT5

The correlation of cervicovaginal cytology (Pap test) findings with cervical biopsy results is a significant part of the cytopathology laboratory's quality assurance program. By monitoring this correlation, the laboratory can identify and address potential problems requiring improvement, thereby ensuring better patient results. This study helps laboratories meet CAP Laboratory Accreditation Program Cytopathology Checklist statements CYP.01900, CYP.07543, and CYP.07600 on cytologic/histologic correlation, and The Joint Commission Standard QSA.08.06.03: The cytology laboratory has a process to correlate cytologic interpretations with the corresponding histologic finding.

Objective

Quantify the correlation between the findings of cervicovaginal cytology and corresponding histologic material.

Data Collection

On a monthly basis, participants will record the number of true-positive, false-positive, and false-negative cytology-biopsy correlations. The false-negative correlations will be classified into four error categories: screening errors, interpretive errors, screening and interpretive errors, and adequacy determination errors. Participants will also record the biopsy diagnoses for Pap tests with an interpretation of atypical squamous cells (ASC-US and ASC-H) or atypical glandular cells (AGC). This monitor includes cervical biopsy specimens submitted to the laboratory that have a corresponding satisfactory or satisfactory but limited Pap test within three months of the biopsy.

Performance Indicators

- Predictive value of positive cytology (%)
- Sensitivity (%)
- Screening/interpretation sensitivity (%)
- Sampling sensitivity (%)
- Percent positive for ASC-US interpretations
- Percent positive for ASC-H interpretations
- Percent positive for AGC interpretations

Look for your input forms approximately two weeks prior to the quarter.

Human Papillomavirus (High Risk) for Cytopathology CHPVD, CHPVM, CHPVK, CHPVJ

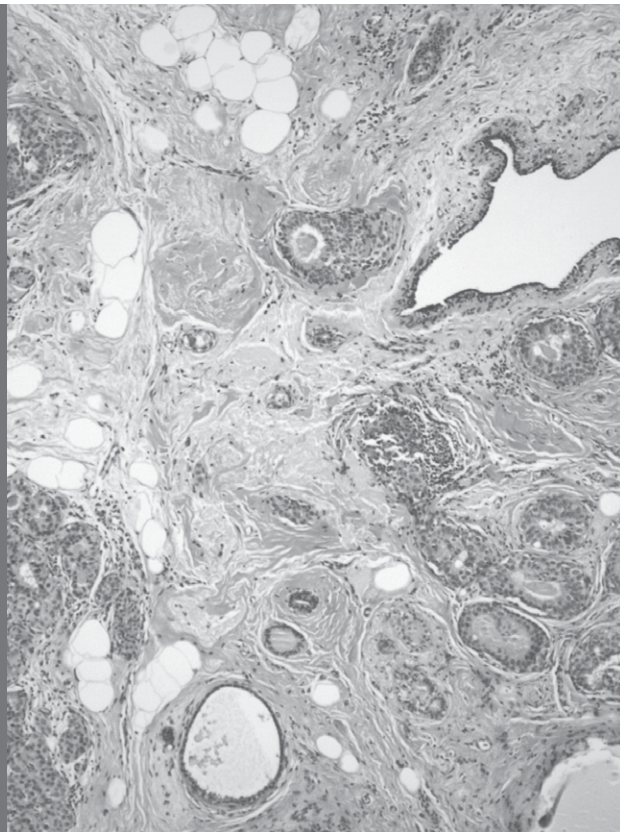
Analyte/Procedure	Program Code				Challenges per Shipment
	CHPVD	CHPVM	CHPVK	CHPVJ	
HPV	▮	▮	▮	▮	5
High-risk HPV genotyping (optional)		▮	▮	▮	5

Additional Information

- Each laboratory should choose the program that best reflects the transport media received in its facility. For program CHPVJ, participants must provide results for all three media types. If your laboratory receives two types of media, order the program that is most appropriate for your specific laboratory (CHPVD, CHPVM, or CHPVK).
- For laboratories that perform HPV genotyping using ThinPrep PreservCyt or SurePath Preservative Fluid transport mediums on site, programs CHPVM, CHPVK and select samples of program CHPVJ provide an opportunity to report specific HPV genotypes.
- The CAP does not report genotyping responses to the CMS.

Program Information

- Five simulated cervical specimens
- CHPVD - Digene® Specimen Transport Medium™ (STM)
- CHPVM - ThinPrep PreservCyt® transport medium
- CHPVK - SurePath Preservative Fluid transport medium and corresponding vial of diluent
- CHPVJ - Combination of Digene, ThinPrep PreservCyt, and SurePath transport mediums
- Three shipments per year



Touch Imprint/Crush Preparation TICP/TICP1

Procedure	Program Code	Challenges per Shipment
	TICP/TICP1	
Online slide and image program in rapid assessment case review	▮	4

Additional Information

- The TICP program is designed to familiarize surgical pathologists, cytopathologists, and cytotechnologists with the cytomorphologic features of pathologic processes and tumors in touch imprints and crush or scrape preparations. These specimens are prepared either for intraoperative consultation (frozen section) or rapid on-site evaluation (ROSE) of tissue biopsies for adequacy and/or interpretation. Participants will learn to make an immediate adequacy assessment, assign the process to a general category, and triage the specimen to appropriate ancillary studies. Participants will review digital whole slides of the TICP preparations (hematoxylin & eosin, modified Wright-Giemsa, and/or Papanicolaou stains), static images of the preparation and ancillary studies, and clinical history/radiographic findings to reach a diagnosis. Each case has a complete description of entities in the differential diagnosis along with a discussion of the correct interpretation.
- Participants will receive immediate feedback on interpretations, ancillary studies, and case-related adequate assessment.
- The cases will focus on TICP lung and adrenal tumors.
- May include rarely captured cases that may not be available on the glass slide.
- See system requirements on page 13.

Program Information

- TICP - Four online assessment challenges with clinical history; TICP provides CME or CE credit for one pathologist or cytotechnologist; for each additional pathologist or cytotechnologist, order TICP1
- TICP1 - Reporting option with CME or CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with program TICP
- Earn a maximum of 10 CME credits (*AMA PRA Category 1 Credits*) per pathologist and a maximum of 10 CE credits per cytotechnologist for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Online, whole slide images powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Nongynecologic Cytopathology Education Program NGC/NGC1

Procedure	Program Code	Challenges per Shipment
	NGC/NGC1	
Nongynecologic cytopathology case review – glass slides	▮	5
Nongynecologic cytopathology case review – online	▮	5 per year

Additional Information

- The Nongynecologic Cytopathology Education (NGC) Program is an interlaboratory educational opportunity to assess participants' screening and interpretive skills. The NGC program is unsuitable for proficiency testing as these cases are chosen for their educational value. Cases may incorporate static online images that incorporate radiology and multiple aspects of pathology to enhance the interpretation.
- Participants will receive an evaluation via email shortly after submitting results online.
- Additional online advanced education cases provide immediate feedback on interpretation selection, follow-up recommendations, and case-related educational questions.
- See system requirements on page 13.

Program Information

- NGC - Five glass slides; five online advanced education cases; one laboratory response form and two individual response forms
- NGC1 - Reporting option with CME or CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with program NGC
- Earn a maximum of 25 CME credits *(AMA PRA Category 1 Credit)* per pathologist and a maximum of 25 CE credits per cytotechnologist for completing the glass slides and online cases
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Online, whole slide images powered by DigitalScope technology
- Four shipments per year

Digital Slide Program in Fine-Needle Aspiration FNA/FNA1

Procedure	Program Code	Challenges per Shipment
	FNA/FNA1	
Online program in fine-needle aspiration case review	▮	5

Additional Information

- This program focuses on FNA diagnostic dilemmas in practice. Online cases, which consist of whole slide images and static images, provide immediate feedback on interpretation selection, ancillary studies selection, and case-related educational questions.
- Cases will focus on FNA of head and neck and infectious granulomatous topics.
- May include rarely captured cases that may not be available on the glass slide.
- See system requirements on page 13.

Program Information

- FNA - Five online diagnostic challenges; FNA provides CME or CE credit for one pathologist or cytotechnologist; for each additional pathologist or cytotechnologist, order FNA1
- FNA1 - Reporting option with CME or CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with program FNA
- Earn a maximum of 10 CME credits *(AMA PRA Category 1 Credits)* per pathologist and a maximum of 10 CE credits per cytotechnologist
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Online, whole slide images powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Fine-Needle Aspiration Glass Slide FNAG/FNAG1

Procedure	Program Code	Challenges per Shipment
	FNAG/FNAG1	
Fine-needle aspiration glass slide case review	▮	5

Additional Information

- The Fine-Needle Aspiration Glass Slide Education program is an interlaboratory educational opportunity to assess participants' screening and interpretive skills. FNAG cases may include more than one slide of varying stains and/or preparations used on fine-needle aspirations.
- Cases may include static online images that incorporate radiology and multiple aspects of pathology to support the interpretation.
- Participants will receive an evaluation via email shortly after submitting results online.

Program Information

- FNAG - Five cases consisting of glass slides and selected online images, representing a variety of conditions; one laboratory response form and two individual response forms; FNAG provides CME or CE credit for one pathologist or cytotechnologist; for each additional pathologist or cytotechnologist, order FNAG1
- FNAG1 - Reporting option with CME or CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with program FNAG
- Earn a maximum of 10 CME credits *(AMA PRA Category 1 Credits)* per pathologist and a maximum of 10 CE credits per cytotechnologist
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Two shipments per year

CME CE credit

Ultrasound Features of Superficial and Palpable Lesions (PUB128)

This ruggedly constructed guide is the ideal reference tool for clinicians to use while performing ultrasound-guided fine-needle aspiration (USFNA). Compact and easy-to-follow, it includes hundreds of comparative images and concise descriptions covering normal anatomy and abnormalities of superficial body sites. Helpful clinical hints are offered throughout the book.

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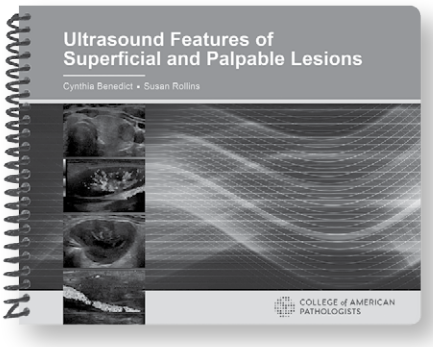
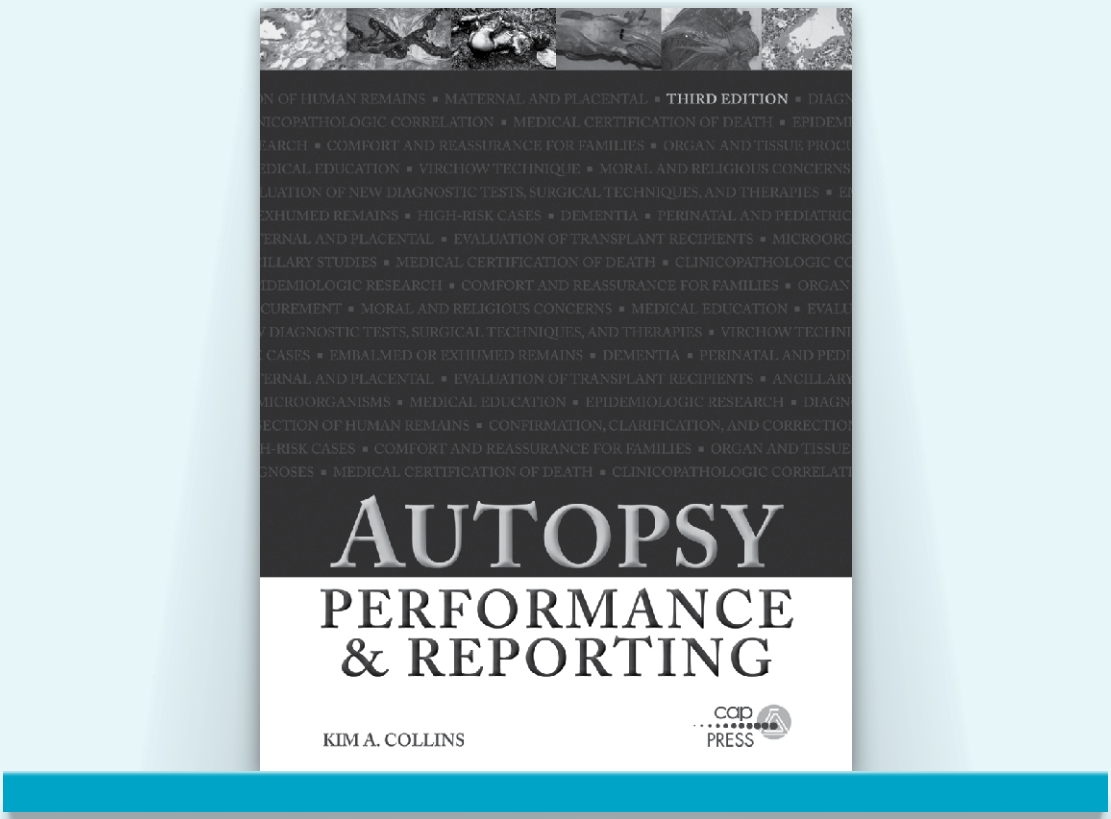


Item number: PUB128
Spiral bound; 200 pages; 375 images and illustrations; 2018

Take a modern approach to autopsy pathology



With more than 1,000 high-quality color images, the third edition of *Autopsy Performance & Reporting* includes:

- Numerous tables and checklists for fast, thorough reference
- Role of new technology, including molecular pathology, ancillary laboratory studies, and 3-D radiography
- Detailed autopsy procedures for specific organ systems and patient populations
- Guidelines for autopsy reporting and quality assurance

Autopsy Performance & Reporting

Item number: PUB126

Hardcover; 472 pages; 1,000+ color images and tables; 2017

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21 Forensic Sciences

Our programs closely mimic patient testing to ensure accuracy.

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Forensic Sciences

Analytes/procedures in **bold** type are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Forensic Pathology FR/FR1

Procedure	Program Code	Challenges per Shipment
	FR/FR1	
Forensic pathology cases	▮	5

Additional Information

- Cases may include or reflect anthropologic materials, ballistics, dental identification, DNA identification, environmental pathology, forensic evidence, injury pattern, medicolegal issues, toxicology, and trace evidence.
- FR/FR1 is for hospital-based pathologists, forensic pathologists, residents, fellows, and medical examiners/coroners. This educational program is also designed for investigators, analysts, and technicians/technologists.

Program Information

- FR - Online activity containing five case studies illustrating gross and/or microscopic slides and questions related to medicolegal decision making; CME or CE credit is available for one pathologist or investigator. For each additional pathologist or investigator, order FR1
- FR1 - Additional pathologist or investigator (within the same institution) reporting option with CME or CE credit; must order in conjunction with program FR
- Includes option to download program content
- Earn a maximum of 12.5 CME credits (*AMA PRA Category 1 Credits™*) per pathologist and a maximum of 12.5 CE credits per investigator for completion of an entire year
- This activity meets the ABPath CC requirements for Improvement in Medical Practice (IMP)
- Two online activities per year; your CAP shipping contact will be notified via email when the activity is available

Vitreous Fluid, Postmortem VF		
Analyte	**Program Code**	**Challenges per Shipment**
	VF	
Acetone	▮	3
Chloride	▮	3
Creatinine	▮	3
Ethanol	▮	3
Glucose	▮	3
Potassium	▮	3
Sodium	▮	3
Vitreous urea nitrogen	▮	3

Program Information

- Three 5.0-mL synthetic vitreous fluid specimens
- For forensic and other toxicology laboratories that perform quantitative analysis of vitreous fluid
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year

Clinical Toxicology Testing: A Guide for Laboratory Professionals, Second Edition (PUB227)

This book is a practical guide to directing hospital toxicology laboratory operations. This edition features expanded sections on testing in the clinical setting, methodologies, and more user-friendly information on specific analytes. It provides the reader with a comprehensive view of what is needed—and expected—when offering a clinical toxicology service.

Contents include:

- Toxicology testing in the clinical setting, including new chapters on pediatric testing and chronic opioid therapy
- Toxicokinetics and methodologies, with new and expanded information on laboratory-developed tests, screening assays, targeted tests, and oral fluids and alternative matrices
- Specific analytes, including novel psychoactive substances and the use of medical cannabis
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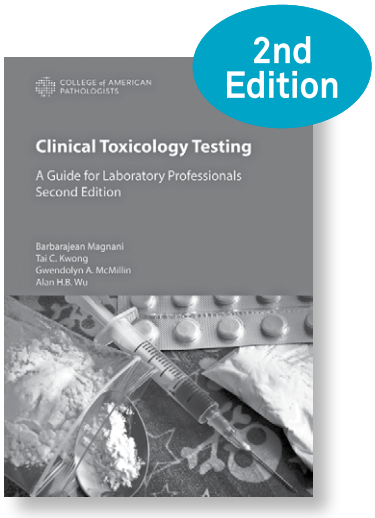

Item number: PUB227
Softcover; 2020

Forensic Toxicology, Criminalistics FTC

Analyte	Program Code	Challenges per Shipment
	FTC	
See drug listing below	▮	5

Program Information

- Five 20.0-mL whole blood specimens
- For crime and hospital laboratories that have forensic toxicology divisions performing qualitative and quantitative analysis of drugs in whole blood specimens
- Three shipments per year

FTC Program Drug Listing

Challenges will include a mix of drugs from the list below.

6-acetylmorphine (6-AM)
7-aminoclonazepam
7-aminoflunitrazepam
7-hydroxymitragynine NEW
Acetaminophen
Alpha-hydroxyalprazolam
Alprazolam
Amitriptyline
Amphetamine
Aripiprazole
Atenolol
Atropine
Benzoylecgonine
Brompheniramine
Buprenorphine
Bupropion
Butalbital
Carbamazepine
Carbamazepine-10, 11-epoxide
Carisoprodol
Chlordiazepoxide
Chlorpheniramine
Citalopram
Clomipramine
Clonazepam
Clozapine
Cocaethylene
Cocaine
Codeine
Cyclobenzaprine*
Delta-9-THC
Delta-9-THC-COOH
Demoxepam
Desipramine
Desmethylclomipramine
Desmethylsertraline
Dextromethorphan
Diazepam
Dihydrocodeine
Diltiazem
Diphenhydramine
Doxepin
Doxylamine
Duloxetine
Ecgonine ethyl ester
Ecgonine methyl ester
Ephedrine
Fentanyl*
Flunitrazepam
Fluoxetine
Gabapentin
Gamma-hydroxybutyrate (GHB)
Hydrocodone
Hydromorphone
Hydroxybupropion
Hydroxyzine
Ibuprofen
Imipramine
Ketamine
Lamotrigine
Levetiracetam
Lidocaine
Lorazepam
Lysergic acid diethylamide (LSD)
Meperidine*
Mephedrone
Meprobamate
Methadone
Methadone metabolite (EDDP)
Methamphetamine
Methylenedioxyamphetamine (MDA)
Methylenedioxymethamphetamine (MDMA)
Methylenedioxypyrovalerone (MDPV)
Methylphenidate
Metoprolol
Mirtazapine
Mitragynine (Kratom) NEW
Morphine*
N-desmethyltramadol
Naproxen
Norbuprenorphine
Norchlordiazepoxide
Norclomipramine
Norcodeine
Norcyclobenzaprine
Nordiazepam
Nordoxepin
Norfentanyl
Norfluoxetine
Norketamine
Normeperidine
Normirtazapine NEW
Noroxycodone
Norpropoxyphene
Norsertraline
Nortrimipramine
Nortriptyline
Norverapamil
O-desmethyltramadol
Olanzapine
Oxazepam
Oxycodone
Oxymorphone
Paroxetine
Pentobarbital
Phencyclidine
Phenethylamine
Pheniramine
Phenobarbital
Phentermine
Phenylephrine
Phenytoin
Pregabalin
Propoxyphene
Propranolol
Pseudoephedrine
Quetiapine
Quinine
Ranitidine
Salicylate
Sertraline
Strychnine
Temazepam
Topiramate
Tramadol
Trazodone
Trimipramine
Valproic Acid
Venlafaxine
Verapamil
Zolpidem

*and/or metabolite(s)

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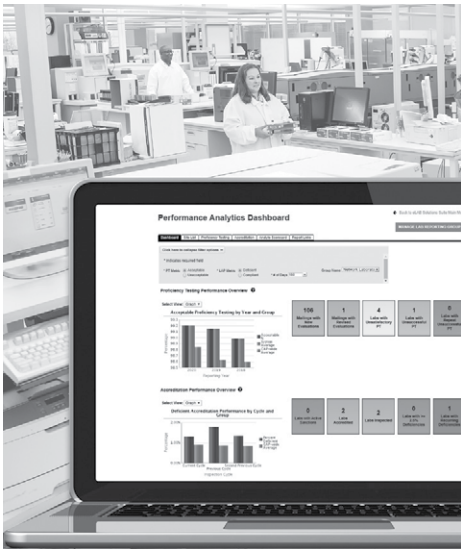

Performance Analytics Dashboard provides valuable insights into your laboratory's performance.

The complimentary dashboard helps you manage your CAP PT and accreditation performance.

- Access all graded proficiency testing result forms, evaluations, and participant summary reports from one centralized location.
- Benchmark your laboratory against your peers and CAP-wide performance.
- Consolidate multiple CAP numbers to view a single dashboard for an entire system.

Analyte/Procedure Index

The following Analyte/Procedure Index is a comprehensive listing of analytes and corresponding CAP program options.

Analytes/procedures **in bold type** whose corresponding program codes are **bold** are regulated for proficiency testing by the Centers for Medicare & Medicaid Services (CMS).

Laboratories must perform five challenges three times per year (as noted by boldface) for analytes that are regulated by the CMS.

The **X** in the LAP ENR column denotes the CAP programs that can be used to fulfill the proficiency testing enrollment requirements for CAP-accredited laboratories. For international CAP-accredited laboratories, enrollment in CAP PT is required for all tests/activities if a program is available. Refer to program descriptions in this catalog to determine compatibility with your specific methodologies.

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Acid phosphatase		C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Acid-fast smear	X	**E**	Mycobacteriology	192
	X	**E1**	Mycobacteriology, Ltd	192
***Acinetobacter calcoaceticus-baumannii* complex**	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
Activated clotting time	X	CT, CT1, CT2, CT3, CT5	ACT	166
		CTQ, CT1Q, CT2Q, CT3Q, CT5Q	Quality Cross Check, ACT	48
		POC14, POC15, POC16	Competency Activated Clotting Time	54
Activated partial thromboplastin time	X	**CGB**	Basic Coagulation	162
		CGE/CGEX	Coagulation, Extended	163
	X	**CGL**	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
		CGS1	Coag Special, Series 1	164
		CGS3	Coag Special, Series 3	164
		CGS4	Coag Special, Series 4	164
		DBGN	Anticoagulant Monitoring, Dabigatran	165
		FNPX	Anticoagulant Monitoring, Fondaparinux	165
		RVBN	Anticoagulant Monitoring, Rivaroxaban	165
Activated protein C resistance		CGE/CGEX	Coagulation, Extended	163
		CGS2	Coag Special, Series 2	164
Active vitamin B12		MMA	MMA and Active Vitamin B12	84
Acylcarnitine		BGL	Biochemical Genetics	255
ADAMTS13		CGS7	ADAMTS13	164
Adenovirus		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
		ID2	Nucleic Acid Amp, Respiratory	202
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease Respiratory Panel	208
		VLS2	Viral Load	204
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen by DFA	199
	X	**VR4**	Viral Antigen by EIA and Latex	199

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Adenovirus 40/41		SP, SPN	Stool Pathogen	188
Adjustable micropipette cal ver/lin		I	Instrumentation	134
Adrenocorticotropic hormone (ACTH)	X	TM/TMX	Tumor Markers	91
Alanine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Alanine aminotransferase (ALT/SGPT)	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Albumin	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		SPE	Protein Electrophoresis	78
Albumin, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76
Albumin, urine		ABU	Accuracy-Based Urine	115
		LN20	Urine Albumin	128
	X	U	Urine Chemistry-General	70
Albumin: creatinine ratio		ABU	Accuracy-Based Urine	115
		LN20	Urine Albumin Cal Ver/Lin	128
		U	Urine Chemistry-General	70
		UMC	Urine Albumin Creatinine	155
Alcohol, serum	X	**AL2**	Serum Alcohol/Volatiles	104
		LN11	Serum Ethanol Cal Ver/Lin	125
Alcohol, whole blood	X	**AL1**	Whole Blood Alcohol/Volatiles	104
Aldolase		ADL	Aldolase	73
Aldosterone, serum	X	RAP	Renin and Aldosterone	91

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Aldosterone, urine		N/NX	Urine Chemistry-Special	71
Alkaline phosphatase (ALP)	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Allergens (specific)		SE	Diagnostic Allergy	219
Alloisoleucine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Alpha-1 antitrypsin	X	**IG/IGX**	Immunology, General	214
		LN7	Immunology Cal Ver/Lin	124
Alpha-1 antitrypsin genotyping (*SERPINA1*) gene	X	AAT	Alpha-1 Antitrypsin Genotyping	257
Alpha-1 globulin		SPE	Protein Electrophoresis	78
Alpha-2 globulin		SPE	Protein Electrophoresis	78
Alpha-2-antiplasmin		CGE/CGEX	Coagulation, Extended	163
Alpha-2-macroglobulin		A2MG	Alpha-2-Macroglobulin	216
Alpha-fetoprotein (AFP), amniotic fluid	X	FP/FPX	Maternal Screen	89
Alpha-fetoprotein (AFP), serum	X	**FP/FPX**	Maternal Screen	89
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Alpha-hydroxyalprazolam		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Alpha-thalassemia		HGM	Hemoglobinopathies, Molecular Methods	258
Alprazolam		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Alprazolam (cont.)		UT	Urine Toxicology	98
Aluminum	X	R	Trace Metals	80
Aluminum, urine		TMU	Trace Metals, Urine	106
Aluminum, whole blood		TMWB	Trace Metals, Whole Blood	106
Amikacin	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Amino acids, qualitative	X	BGL	Biochemical Genetics	255
Amino acids, quantitative		BGL	Biochemical Genetics	255
		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Amitriptyline		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
	X	ZT	TDM, Special	60
Ammonia		C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN32	Ammonia Cal Ver/Lin	130
Amniotic fluid leakage (nitrazine)		AFL	Amniotic Fluid Leakage	150
Amobarbital		DFC	Drug-Facilitated Crime	111
Amphetamine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
		UTCO	Urine Toxicology Carryover	136
Amphetamine group		DMPM	Drug Monitoring for Pain Management	110
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Amylase	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Amylase, pancreatic	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Amylase, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Anabasine		NTA	Nicotine and Tobacco Alkaloids	105
Anaerococcus prevotii/ vaginalis		JIP	Joint Infection Panel	206
Analytical balance		I	Instrumentation	134
Anaplasma phagocytophilum		TTD	Antibody Detection of Tick-Transmitted Diseases	211
Anaplastic lymphoma kinase		PM6	Anaplastic Lymphoma Kinase IHC	297
Androstenedione	X	Y/YY	Sex Hormones	86
Angiotensin converting enzyme		ACE	Angiotensin Converting Enzyme	73
Anti ADAMTS13 IgG		CGS7	ADAMTS13	164
Anti-A titer		AABT, AABT1	Antibody Titer, Automated	233
		ABT, ABT1	Antibody Titer	233
Anti-B titer		AABT3	Antibody Titer, Automated	233
		ABT3	Antibody Titer	233
Antibody detection	X	**J, JAT**	Transfusion Medicine	228–229
		JATE1	Transfusion Medicine, Automated, Educational	229
		JATQ	Quality Cross Check, Transfusion Medicine	50
	X	PS	Platelet Serology	235
		TMCA	Transfusion Medicine, Competency Assessment	235
Antibody detection/ identification (HLA)	X	MXB, MXC, MXE	HLA Analysis, Class I/II	246
Antibody identification		ETME1	Expanded Transfusion Medicine Exercises	239
	X	**J, JAT**	Transfusion Medicine	228–229
		JATE1	Transfusion Medicine, Automated, Educational	229
		TMCA	Transfusion Medicine, Competency Assessment	235
Antibody screen (HLA)		MXB, MXC, MXE	HLA Analysis, Class I/II	246
Antibody titer		ABT, ABT1, ABT2, ABT3	Antibody Titer	233
Antibody titer, automated		AABT, AABT1, AABT2, AABT3	Antibody Titer, Automated	233
Anticardiolipin IgA, qualitative		ACL, APS	Antiphospholipid Antibody	217
Anticardiolipin IgA, quantitative		ACL, APS	Antiphospholipid Antibody	217
Anticardiolipin IgG, IgM, polyclonal; qualitative	X	ACL, APS	Antiphospholipid Antibody	217
Anticardiolipin IgG, IgM, polyclonal; quantitative		ACL, APS	Antiphospholipid Antibody	217
Anti-CCP		CCP	Cyclic Citrullinated Peptide Antibody	218
Anticentromere antibody		S2	Immunology, Special	215
Antichromatin antibody		ACA	Antichromatin Antibody	216
Anti-CMV, IgG, IgM	X	VR3	Infectious Disease Serology	211
Anti-CMV, total	X	VM3	Viral Markers-Series 3	240
	X	VR3	Infectious Disease Serology	211
Anti-D titer		AABT, AABT2	Antibody Titer, Automated	233
		ABT, ABT2	Antibody Titer	233
Anti-DNA (ds) antibody, qualitative	X	S2, S4	Immunology, Special	215
Anti-DNA (ds) antibody, quantitative		S2, S4	Immunology, Special	215
Anti-DNA topoisomerase (Anti-Scl-70)		RDS	Rheumatic Disease Special Serologies	219
Antideamidated gliadin peptide antibody screen (IgA, IgG)		CES, CESX	Celiac Serology	218
Antideamidated gliadin peptide antibody, IgA; qualitative	X	CES, CESX	Celiac Serology	218
Antideamidated gliadin peptide antibody, IgG; qualitative		CES, CESX	Celiac Serology	218

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Antideamidated gliadin peptide antibody, IgA, IgG; quantitative		CES, CESX	Celiac Serology	218
Antideamidated gliadin peptide/tissue transglutaminase antibody screen (IgA, IgG)		CES, CESX	Celiac Serology	218
Antiendomysial antibody IgA, IgG; qualitative		CES, CESX	Celiac Serology	218
Antiendomysial antibody IgA, IgG; quantitative		CES, CESX	Celiac Serology	218
Antifilamentous actin IgG antibody		FCN	Antifilamentous Actin Antibody	216
Antifungal drugs monitoring		AFD	Antifungal Drugs Monitoring	109
Antifungal susceptibility testing	X	F	Mycology and Aerobic Actinomycetes	193
	X	F1	Yeast	193
Antigen detection, bacterial		CDF2	*Clostridium difficile* Detection	185
	X	**CDF5**	*Clostridium difficile* Detection	185
	X	**D**	Bacteriology	175
	X	**D6**	Rapid Group A Strep	181
	X	**D8**	Group B Strep	182
	X	D9	Rapid Group A Strep, Waived	181
	X	**HC1**	*C. trachomatis* by DFA	185
	X	**HC3**	*C. trachomatis* by EIA	185
		LBAS	*Legionella pneumophila*	182
	X	**MC4**	Urine Colony Count Combination	179
		POC4	POC Strep Screen Competency	52
	X	**RMC**	Routine Microbiology Combination	178
		SBAS	*Streptococcus pneumoniae*	182
	X	**VS**	Vaginitis Screen	189
Antigen detection, viral	X	**VR2**	Viral Antigen Detection by DFA	199
	X	**VR4**	Viral Antigen Detection by EIA and Latex	199
Antigliadin antibody IgA, IgG, qualitative		CES, CESX	Celiac Serology	218
Antigliadin antibody IgA, IgG, quantitative		CES, CESX	Celiac Serology	218
Antiglomerular basement membrane, qualitative	X	S2	Immunology, Special	215
Antiglomerular basement membrane, quantitative		S2	Immunology, Special	215
Anti-HAV, IgG	X	VM1	Viral Markers-Series 1	240
Anti-HAV, IgM	X	VM5	Viral Markers-Series 5	241

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Anti-HAV, total		VM1	Viral Markers-Series 1	240
Anti-HBc, IgM	X	**VM5**	Viral Markers-Series 5	241
Anti-HBc, total	X	**VM1**	Viral Markers-Series 1	240
Anti-Hbe	X	VM2	Viral Markers-Series 2	240
Anti-HBs, qualitative	X	VM1	Viral Markers-Series 1	240
Anti-HBs, quantitative		VM1	Viral Markers-Series 1	240
Anti-HCV	X	RHCVW	Anti-HCV, Rapid Methods, Waived	241
	X	VM1	Viral Markers-Series 1	240
Antihistidyl t-RNA synthetase (Jo-1)		RDS	Rheumatic Disease Special Serologies	219
Antihistone antibody		AHT	Antihistone Antibody	216
Anti-HIV-1	X	**AHIV**	Anti-HIV Rapid Methods	241
	X	AHIVW	Anti-HIV Rapid Methods	241
	X	**VM1**	Viral Markers-Series 1	240
Anti-HIV-2	X	**AHIV**	Anti-HIV Rapid Methods	241
	X	VM1	Viral Markers-Series 1	240
Anti-HIV-1/2	X	**AHIV**	Anti-HIV Rapid Methods	241
	X	AHIVW	Anti-HIV Rapid Methods	241
	X	**VM1**	Viral Markers-Series 1	240
Anti-HIV-1/2, HIV-1 p24 antigen	X	**VM6, VM6X**	Viral Markers-Series 6	241
Anti-HTLV-I/II		VM3	Viral Markers-Series 3	240
Anti-intrinsic factor antibody		APC	Autommune Gastritis Markers	216
Anti-Jo-1 (antihistidyl t-RNA synthetase)		RDS	Rheumatic Disease Special Serologies	219
Anti-LKM		LKM	Liver-Kidney Microsomal Antibody	219
Antimicrobial susceptibility testing	X	**D**	Bacteriology	175
	X	**D2**	Urine Cultures	177
		MBT	Microbiology Bench Tools Competency	176
	X	**RMC**	Routine Microbiology Combination	178
Antimitochondrial antibody, qualitative	X	S2	Immunology, Special	215
Antimitochondrial antibody, quantitative		S2	Immunology, Special	215
Antimitochondrial M2 antibody		H	Antimitochondrial M2 Antibody	216
Anti-MPO		S2	Immunology, Special	215
Antimüllerian hormone	X	AMH	Antimüllerian Hormone	86
Antimycobacterial susceptibility testing	X	**E**	Mycobacteriology	192
		MTBR	Molecular MTB Detection and Resistance	192
		MTR5	Molecular MTB Detection and Resistance	192

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Antineutrophil cytoplasmic antibody (ANCA)		S2	Immunology, Special	215
Antinuclear antibody (ANA), qualitative	X	**ANA, IL**	Immunology	214
Antinuclear antibody (ANA), quantitative	X	ANA, IL	Immunology	214
Antiparietal cell antibody		APC	Autoimmune Gastritis Markers	216
Antiphosphatidylserine antibodies (IgG, IgM, and IgA)		APS	Antiphosphatidylserine Antibodies	217
Antiphosphatidylserine/prothrombin complex		APS	Antiphosphatidylserine Antibodies	217
Antiphospholipid antibody		ACL	Antiphospholipid Antibody	217
Anti-PR3		S2	Immunology, Special	215
Antiribosomal P antibody		ARP	Antiribosomal P Antibody	217
Anti-RNP antibody, qualitative	X	S2	Immunology, Special	215
Anti-RNP antibody, quantitative		S2	Immunology, Special	215
Anti-*Saccharomyces cerevisiae* antibody		ASC	Anti-*Saccharomyces cerevisiae* Antibody	217
Anti-Scl-70 (anti-DNA topoisomerase)		RDS	Rheumatic Disease Special Serologies	219
Anti-Sm antibody, qualitative	X	S2	Immunology, Special	215
Anti-Sm antibody, quantitative		S2	Immunology, Special	215
Anti-Sm/RNP antibody, qualitative	X	S2	Immunology, Special	215
Anti-Sm/RNP antibody, quantitative		S2	Immunology, Special	215
Antismooth muscle antibody, qualitative	X	S2	Immunology, Special	215
Antismooth muscle antibody, quantitative		S2	Immunology, Special	215
Antisperm antibody IgG		ASA	Semen Analysis	158
Anti-SSA antibody, qualitative	X	S2	Immunology, Special	215
Anti-SSA antibody, quantitative		S2	Immunology, Special	215
Anti-SSA/SSB antibody, qualitative	X	S2	Immunology, Special	215
Anti-SSA/SSB antibody, quantitative		S2	Immunology, Special	215
Anti-SSB antibody, qualitative	X	S2	Immunology, Special	215
Anti-SSB antibody, quantitative		S2	Immunology, Special	215
Antistreptolysin O (ASO), qualitative	X	**ASO, IL**	Immunology	214
Antistreptolysin O (ASO), quantitative	X	ASO, IL	Immunology	214
Antithrombin (activity, Ag)		CGE/CGEX	Coagulation, Extended	163
		CGS2	Coag Special, Series 2	164
		LN35	Thrombophilia Cal Ver/Lin	131
Antithyroglobulin antibody, qualitative	X	S2, S4	Immunology, Special	215
Antithyroglobulin antibody, quantitative		S2, S4	Immunology, Special	215
Antithyroid microsomal, qualitative	X	S2, S4	Immunology, Special	215
Antithyroid microsomal, quantitative		S2, S4	Immunology, Special	215
Antithyroid peroxidase, qualitative	X	S2, S4	Immunology, Special	215
Antithyroid peroxidase, quantitative		S2, S4	Immunology, Special	215
Antitissue transglutaminase antibody IgA, qualitative	X	CES, CESX	Celiac Serology	218
Antitissue transglutaminase antibody IgA, quantitative	X	CES, CESX	Celiac Serology	218
Antitissue transglutaminase antibody IgG, qualitative		CES, CESX	Celiac Serology	218
Antitissue transglutaminase antibody IgG, quantitative		CES, CESX	Celiac Serology	218
Anti-*Trypanosoma cruzi*		VM4	Viral Markers-Series 4	241
Apixaban		APXBN	Anticoagulant Monitoring, Apixaban	165
Apolipoprotein A1	X	ABL	Accuracy-Based Lipids	114
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Apolipoprotein B	X	ABL	Accuracy-Based Lipids	114
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Apolipoprotein E (*APOE*) genotyping	X	APOE	Apolipoprotein E (*APOE*) Genotyping	257
Arginine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Aripiprazole		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Bacterial identification (cont.)	X	**MC4**	Urine Colony Count Combination	179
		MRS	Methicillin-resistant *Staphylococcus aureus* Screen	186
		MRS2M	MRSA Screen, Molecular, 2 Challenge	186
	X	**MRS5**	Methicillin-resistant *Staphylococcus aureus* Screen	187
	X	**MRS5M**	MRSA Screen, Molecular, 5 Challenge	187
Bacterial vaginosis screen		BV	Bacterial Vaginosis	189
		MVP	Molecular Vaginal Panel	190
		VS2	Vaginitis Screen, Virtual Gram Stain	191
Bacterioides fragilis		JIP	Joint Infection Panel	206
Barbiturate group		DMPM	Drug Monitoring for Pain Management	110
		SDS	Serum Drug Screen	104
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
BCR/ABL1 p190	X	MHO2, MHO3	Molecular Hematologic Oncology	276
		MRD1	Minimal Residual Disease	277
BCR/ABL1 p210	X	MHO2, MHO3	Molecular Hematologic Oncology	276
		MRD	Minimal Residual Disease	277
Bence Jones protein		UBJP	Urinary Bence Jones Protein	78
Benzodiazepine group		DMPM	Drug Monitoring for Pain Management	110
		OFD	Oral Fluid for Drugs of Abuse	103
		SDS	Serum Drug Screen	104
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Benzoylecgonine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Benzoylecgonine (cont.)		UT	Urine Toxicology	98
		UTCO	Urine Toxicology Carryover	136
Beta-1 globulin		SPE	Serum Electrophoresis	78
Beta-2 globulin		SPE	Serum Electrophoresis	78
Beta-2-glycoprotein I		ACL, APS	Antiphospholipid Antibody	217
Beta-2-microglobulin, serum	X	TM/TMX	Tumor Markers	91
Beta-2-microglobulin, urine		CD	Cadmium	105
Beta globulin		SPE	Serum Electrophoresis	78
Beta-hydroxybutyrate	X	KET	Ketones	66
Beta-thalassemia		HGM	Hemoglobinopathies, Molecular Methods	258
Bile crystal identification, photographs		BCR	Bile Crystals	151
Bilirubin, confirmatory urine		DSC	Dipstick Confirmatory	151
Bilirubin, direct	X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
	X	NB, NB2	Neonatal Bilirubin	67
Bilirubin, total	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
	X	**NB,** NB2	Neonatal Bilirubin	67
Bilirubin, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		DSC	Dipstick Confirmatory	151
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Bioavailable testosterone		DY	Sex Hormones	86

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Biochemical genetics		BGL, BGL1, BGL2	Biochemical Genetics	255–256
Bioterrorism agents		LPX	Laboratory Preparedness Exercise	187
BK virus		ID1T	Nucleic Acid Amp, JC and BK	200
		VLS, VLS2	Viral Load	204
Blood cannabinoids		THCB	Blood Cannabinoids	109
Blood cell identification		VPBS	Virtual Peripheral Blood Smear	145
Blood cell identification photographs	X	**BCP, BCP2**	Blood Cell Identification	141
	X	**FH1P-FH4P, FH9P, FH10P, FH13P, FH16P**	Hematology Automated Differential	138
	X	**HEP**	Basic Hematology	138
Blood culture	X	BCS	Blood Culture	182
	X	**BCM**	Bacterial Blood Culture, Molecular	183
Blood culture *Staphylococcus aureus*	X	BCS1	Blood Culture *Staphylococcus aureus*	183
Blood culture, yeast, molecular	X	**YBC**	Yeast Blood Culture, Molecular	194
Blood or hemoglobin, urine	X	CMP, CMP1	Clinical Microscopy	148
Blood parasite	X	**BP**	Blood Parasite	197
	X	**P**	Parasitology	196
Blood parasite, rapid		RMAL	Rapid Malaria	197
Bloom syndrome (*BLM* gene)	X	MGL4	Molecular Genetics	259–260
Bocavirus		IDR	Infectious Disease Respiratory Panel	208
Body fluid (cell count)		ABF1, ABF2, ABF3	Automated Body Fluid	150
Body fluid (cell count) manual	X	HFC, HFCI	Hemocytometer Fluid Count	152–153
Body fluid cell identification		CMP/CMP1	Clinical Microscopy	148
		VBF	Virtual Body Fluid	150
Body fluid (chemistry)		FLD, FLD2	Body Fluid	74–75
Body fluid crystal identification		BFC	Crystals	151
Body fluid photographs		CMP, CMP1	Clinical Microscopy	148
Bone marrow cell differential		BMD	Bone Marrow Cell Differential	141
Bone marrow cell identification		BMD	Bone Marrow Cell Differential	141
Bone specific alkaline phosphatase		BMV2	Bone Markers and Vitamins	88
Bordetella holmesii	X	**IDR**	Nucleic Acid Amp, Organisms	208
Bordetella parapertussis		BOR	*Bordetella pertussis/parapertussis*, Molecular	184
		IDN, IDO	Nucleic Acid Amp, Organisms	205
	X	**IDR**	Infectious Disease Respiratory Panel	208
Bordetella pertussis		BOR	*Bordetella pertussis/parapertussis*, Molecular	184
		IDN, IDO	Nucleic Acid Amp, Organisms	205
	X	**IDR**	Infectious Disease Respiratory Panel	208
Borrelia burgdorferi		TTD	Antibody Detection of Tick-Transmitted Diseases	211
BRAF	X	BRAF	Mutation Testing	274
	X	MTP	Multigene Tumor Panel	275
BRAF V600E		BRAFV	BRAF V600E	297
BRCA1/2	X	MGL3	Molecular Genetics	259–260
BRCA1/2 duplication/deletion analysis	X	BRCA	*BRCA1/2* Sequencing	257
BRCA1/2 sequencing	X	BRCA	*BRCA1/2* Sequencing	257
Brain tissue by FISH		CYJ	Fluorescence In Situ Hybrid and Interpretation on Site, Brain/Glioma Tissue	253
Brightfield in situ hybridization	X	ISH2	In Situ Hybridization	272
Bromazepam		DFC	Drug-Facilitated Crime	111
Brompheniramine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Buprenorphine		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Bupropion		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Butalbital		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
***C. difficile* antigen**		CDF2	*Clostridium difficile* Detection	185
		SP, SPN	Stool Pathogens-Rapid and Molecular	188
	X	**CDF5**	*Clostridium difficile* Detection	185
	X	**D**	Bacteriology–Antigen Detection	175
C. difficile toxin		CDF2	*Clostridum difficile* Detection	185
		CDF5	*Clostridum difficile* Detection	185
		D	Bacteriology-Antigen Detection	175
		GIP	Gastrointestinal Panel	210
		GIP5	Gastrointestinal Panel	210
		SP, SPN	Stool Pathogens–Rapid and Molecular	188
CA 15-3		LN34	Tumor Markers Cal Ver/Lin	131
	X	TM/TMX	Tumor Markers	91
CA 19-9		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		LN34	Tumor Markers Cal Ver/Lin	131
	X	TM/TMX	Tumor Markers	91
CA 27.29	X	TM/TMX	Tumor Markers	91
CA 72-4		TM/TMX	Tumor Markers	91
CA 125		LN34	Tumor Markers Cal Ver/Lin	131
	X	TM/TMX	Tumor Markers	91
Cadmium, urine	X	CD	Cadmium	105
Cadmium, whole blood	X	CD	Cadmium	105
Caffeine	X	CZ2X, CZX, CZ, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Calcitonin	X	TM/TMX	Tumor Markers	91
Calcium		ABVD	Accuracy-Based Vitamin D	
	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Calcium (cont.)		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Calcium, ionized	X	AQ, AQ2, AQ3, AQ4	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN13C	Blood Gas Cal Ver/Lin	126
		POC10, POC11	POC Competency Blood Gases	53
Calcium, urine		ABU	Accuracy-Based Urine	115
		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Calcofluor white		FSM	Fungal Smear	195
Campylobacter		CAMP	Campylobacter	185
		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
Canavan disease (*ASPA* gene)	X	MGL4	Molecular Genetics	259–260
Candida albicans		JIP	Joint Infection Panel	206
***Candida* culture**	X	**F3**	*Candida* Culture	194
Candida glabrata vaginal, molecular		MVP	Molecular Vaginal Panel	190
Candida krusei vaginal, molecular		MVP	Molecular Vaginal Panel	190
Candida sp., DNA probe		VS	Vaginitis Screen	189
Candida sp. group, vaginal, molecular		MVP	Molecular Vaginal Panel	190
Cannabinoids			See Delta-9-THC-COOH and Delta-9-THC	
Carbamazepine	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FTC	Forensic Toxicology, Criminalistics	107
		LN3	TDM Cal Ver/Lin	123
		T	Toxicology	98
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Carbamazepine-10,11-epoxide		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Carbamazepine, free		CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Carbapenem-resistant organisms		CRO	Carbapenem-resistant Organisms	184
Carboxyhemoglobin	X	SO	Blood Oximetry	96
		SOQ	Quality Cross Check, Blood Oximetry	44
Cardiomyopathy sequencing panel		CMSP	Cardiomyopathy Sequencing Panel	258
Carisoprodol		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Carnitine	X	BGL1	Biochemical Genetics	255
Casts, urine, semiquantitative		UAA, UAA1	Automated Urinalysis	151
CD1a		RFAV1	Rare Flow Antigen Validation, CD1a	226
CD3	X	FL, FL1	Lymphocyte Subset Immunophenotyping	222
		FL7	Flow Cytometry, T-Cell Subsets Analysis	223
		LN22	Flow Cytometry Cal Ver/Lin	128
		SCP	Stem Cell Processing	237
CD4	X	FL, FL1	Lymphocyte Subset Immunophenotyping	222
		FL7	Flow Cytometry, T-Cell Subsets Analysis	223
		LN22	Flow Cytometry Cal Ver/Lin	128
CD8	X	FL, FL1	Lymphocyte Subset Immunophenotyping	222
		FL7	Flow Cytometry, T-Cell Subsets Analysis	223
		LN22	Flow Cytometry Cal Ver/Lin	128
CD20		PM3	Immunohistochemistry	297
CD30		CD30	CD30 Immunohistochemistry	297
		RFAV3	Rare Flow Antigen Validation, CD30	226
CD34		CBT	Cord Blood Testing	237
	X	FL4	Flow Cytometry CD34+	222
CD34 (cont.)		SCP	Stem Cell Processing	237
CD45	X	FL, FL1	Lymphocyte Subset Immunophenotyping	222
		FL4	Flow Cytometry CD34+	222
CD49d		ZAP70	ZAP-70 Analysis by Flow Cytometry	226
CD103		RFAV2	Rare Flow Antigen Validation, CD103	226
CD117 (c-kit)		PM1	Immunohistochemistry	294
CEA		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
	X	K, KK	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Cell-free DNA		CFDNA	Cell-Free Tumor DNA	274
		NIPT	Noninvasive Prenatal Testing	90
Ceruloplasmin	X	S2, S4	Immunology, Special	215
CFU-GM		CBT	Cord Blood Testing	237
		SCP	Stem Cell Processing	237
CH50		CH50	Total Hemolytic Complement	220
CH100		CH50	CH100	220
Chlamydia trachomatis	X	**HC1**	*C. trachomatis* by DFA	185
	X	**HC3**	*C. trachomatis* by EIA	185
	X	**HC6, HC6X**	*C. trachomatis*/GC by Nucleic Acid Amp	190
	X	**HC7**	*C. trachomatis*/GC DNA by NAA	190
		VR1	Virology Culture	199
Chlamydia pneumoniae		IDN, IDO	Nucleic Acid Amp, Organisms	205
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
Chlordiazepoxide		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Chloride	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Chloride (cont.)		IFS	Interfering Substances	135
		LN13C	Blood Gas Cal Ver/Lin	126
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		POC10, POC11	POC Competency Blood Gases	53
Chloride, sweat	X	SW1, SW2, SW4	Sweat Analysis Series	81
Chloride, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Chloride, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Chlorpheniramine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Cholesterol		ABL	Accuracy-Based Lipids	114
	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
	X	LCW	Chemistry-Ltd, Waived	66
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Chromium	X	R	Trace Metals	80
Chromium, urine		TMU	Trace Metals, Urine	106
Chromium, whole blood		TMWB	Trace Metals, Whole Blood	106
Chromosomal abnormalities	X	CY, CYBK	Cytogenetics	252
Citalopram		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Citrate		KSA	Kidney Stone Risk Assessment	71
Citrobacter		JIP	Joint Infection Panel	206
Citrulline, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
CK isoenzymes	X	**CRTI, HCRTI**	Cardiac Markers	62
CK-MB (immunochemical)	X	**CRT, CRTI, HCRT, HCRTI**	Cardiac Markers	62
		CRTQ	Quality Cross Check, Cardiac Markers	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
	X	**PCARM, PCARMX**	Plasma Cardiac Markers	67
		POC12	Competency Plasma Cardiac Markers	53
CK2 (MB)		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Clinical pathology improvement program		CPIP/CPIP1	Quality Management, Education	14
Clobazam		DFC	Drug-Facilitated Crime	111
Clomipramine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Clonazepam		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Clonidine		DFC	Drug-Facilitated Crime	111
***Clostridium difficile* antigen**		CDF2	*C. diff,* 2 Challenge	185
	X	**CDF5**	*C. diff,* 5 Challenge	185
	X	**D**	Bacteriology-Antigen Detection	175
		SP, SPN	Stool Pathogens-Rapid and Molecular	188
Clostridium difficile toxin		CDF2	*Clostridum difficile* Detection	185
		CDF5	*Clostridum difficile* Detection	185
		D	Bacteriology-Antigen Detection	175
		GIP	Gastrointestinal Panel	210

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Clostridium difficile toxin (cont.)		GIP5	Gastrointestinal Panel	210
		SP, SPN	Stool Pathogens-Rapid and Molecular	188
Clozapine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
		ZE	Therapeutic Drug Monitoring, Extended	60
CMV		ID1	Nucleic Acid Amp, Viruses	200
		LN38	CMV Viral Load Cal	132
		VLS, VLS2	Viral Load	204
	X	VM3	Viral Markers-Series 3	240
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen Detection by DFA	199
	X	VR3	Infectious Disease Serology	211
c-Myc/Bcl-2 immunohistochemistry tumor markers		MYCB	c-Myc/Bcl-2 Immunohistochemistry TMA	299
Cobalt		TMU	Trace Metals, Urine	106
Cobalt, whole blood		TMWB	Trace Metals, Whole Blood	106
Cocaethylene		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Cocaine		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Codeine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Compatibility testing	X	**J, JAT**	Transfusion Medicine	228–229
		JATE1	Transfusion Medicine, Automated, Educational	229
		TMCA	Transfusion Medicine, Competency Assessment	235
Complement C3	X	**IG/IGX**	Immunology, General	214
		LN7	Immunology Cal Ver/Lin	124
Complement C4	X	**IG/IGX**	Immunology, General	214
		LN7	Immunology Cal Ver/Lin	124
Complexed PSA	X	K/KK	Ligand-General	84
COMT		PGX1	Pharmacogenetics	262
Conductivity, sweat	X	SW1, SW2, SW4	Sweat Analysis Series	81
Connexin 26 (*GJB2* gene)	X	MGL3	Molecular Genetics	259–260
Copper	X	R	Trace Metals	80
Copper, urine		TMU	Trace Metals, Urine	106
Copper, whole blood		TMWB	Trace Metals, Whole Blood	106
Coproporphyrins	X	N/NX	Urine Chemistry-Special	71
Copy number variant		CNVST	Copy Number Variant–Solid Tumor	271
Coronavirus		COV2	SARS-CoV-2 Molecular	201
		COVS	SARS-CoV-2 Serology	220
		ID2	Nucleic Acid Amp, Respiratory	202
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
Cortisol		ABS	Accuracy-Based Testosterone and Estradiol	115
	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Cortisol, salivary		SALC	Salivary Cortisol	79
Cortisol, urinary free	X	N/NX	Urine Chemistry-Special	71
Cotinine		NTA	Nicotine and Tobacco Alkaloids	105
		OFD	Oral Fluid for Drugs of Abuse	103
COVID-19		COV2	SARS-CoV-2 Molecular	201
		COV2Q	Quality Cross Check, SARS-CoV-2 Molecular	49

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
COVID-19 (cont.)		COVAG	SARS-CoV-2 Antigen	201
		COVAQ	Quality Cross Check, SARS-CoV-2 Antigen	49
		COVS	SARS-CoV-2 Serology	220
		COVSQ	Quality Cross Check, SARS-CoV-2 Serology	49
		ID3	Nucleic Acid Amplification, Respiratory Limited	203
		IDR	Infectious Disease, Respiratory Panel	208
C-peptide		ABGIC	Accuracy-Based Glucose, Insulin, and C-Peptide	117
	X	ING	Insulin, Gastrin, C-Peptide, PTH	88
		LN46	C-Peptide/Insulin Cal Ver/Lin	133
C-reactive protein (CRP)	X	CRP, IL	Immunology	214
		LN12	C-Reactive Protein Cal Ver/Lin	126
C-reactive protein, high-sensitivity (hsCRP)	X	HSCRP	High-Sensitivity C-Reactive Protein	66
		LN21	High-Sensitivity C-Reactive Protein Cal Ver/Lin	128
Creatine kinase (CK)	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Creatinine	X	**AQ2, AQ4**	Critical Care Blood Gas	94
		AQ2Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Creatinine (cont.)		LN24	Creatinine Accuracy Cal Ver/Lin	129
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		SCO	Serum Carryover	136
Creatinine, urine		ABU	Accuracy-Based Urine	115
		BU	Bone and Mineral, Urine	87
	X	CD	Cadmium	105
		DAI	Urine Drug Adulterant/ Integrity Testing	101
		LN20	Urine Albumin Cal Ver/ Lin	128
		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
		UDC	Forensic Urine Drug Testing, Confirmatory	102
	X	UMC	Urine Albumin/ Creatinine	155
Creatinine, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Creatinine, whole blood	X	**WBCR**	Whole Blood Creatinine	69
Crossmatching		EXM, EXM2	Electronic Crossmatch	229, 231
	X	**J, JAT**	Transfusion Medicine	228–229
	X	MXB, MXC	HLA Analysis, Class I/II	246
		TMCA	Transfusion Medicine, Competency Assessment	235
Cryptococcal antigen detection		CRYP	Cryptococcal Antigen Detection	194
		F	Mycology and Aerobic Actinomycetes	193
		F1	Yeast	193
Cryptococcus neoformans/gatti		IDME	Meningitis/Encephalitis Panel	207
		IDM5	Meningitis/Encephalitis Panel	207
Cryptosporidium		GIP	Gastrointestinal Panel	210
		GIP5	Gastrointestinal Panel	210
***Cryptosporidium* immunoassay, preserved specimen**	X	**P, P3, P4, P5**	Parasitology	196
Crystal identification (bile)		BCR	Bile crystals	151
Crystal identification (body fluid)		BFC	Body Fluid Crystals	151
Crystal identification (urine)		URC	Urine Crystals	151
Crystals, urine (semiquantitative)		UAA	Automated Urinalysis	151

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
CSF antigen detection	X	**D**	Bacteriology	175
CSF IgG calculations		OLI	CSF Chemistry and Oligoclonal Bands	76
C-telopeptide (CTX)		BMV5	Bone Markers and Vitamin	88
		BU	Bone and Mineral, Urine	87
Cutibacterium avidum/granulosum		JIP	Joint Infection Panel	206
Cyclic citrullinated peptide antibody		CCP	Anti-cyclic Citrullinated Peptide Antibody	218
Cyclobenzaprine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Cyclospora cayatanensis		GIP	Gastrointestinal Panel	210
		GIP5	Gastrointestinal Panel	210
Cyclosporine	X	CS	Immunosuppressive Drugs	59
		LN31	Immunosuppressive Drugs Cal Ver/Lin	130
CYP2B6		PGX	Pharmacogenetics	262
CYP2C9	X	PGX	Pharmacogenetics	262
CYP2C19	X	PGX	Pharmacogenetics	262
CYP2D6		PGX	Pharmacogenetics	262
CYP3A4		PGX	Pharmacogenetics	262
CYP3A5		PGX	Pharmacogenetics	262
CYP4F2		PGX	Pharmacogenetics	262
Cystatin C		CYS	Cystatin C	76
Cystic fibrosis (*CFTR* gene)	X	MGL2, MGL5	Molecular Genetics	259–260
Cystine		KSA	Kidney Stone Risk Assessment	71
Cystine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Cytogenomic microarray		CYCGH	Constitutional Microarray Analysis	254
		CYCMA	Cytogenomic Microarray Analysis for Oncologic Abnormality	254
Cytology proficiency testing			See Cytopathology GYN proficiency testing	
Cytomegalovirus (CMV)		ID1	Nucleic Acid Amp, Viruses	200
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
		LN38	CMV Viral Load Cal Ver/Lin	132
		VLS, VLS2	Viral Load	204
	X	VM3	Viral Markers-Series 3	240

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Cytomegalovirus (CMV) (cont.)	X	**VR1**	Virology Culture	199
	X	**VR2**	Virology by DFA	199
	X	VR3	Infectious Disease Serology	211
Cytopathology GYN education		PAPCE1	PAP Edu, Conventional	303
		PAPJE1	PAP Edu, All Technologies	303
		PAPKE1	PAP Edu, SurePath	303
		PAPME1	PAP Edu, ThinPrep	303
Cytopathology GYN proficiency testing		**PAPCPT**	PAP PT, Conventional	302
		PAPJPT	PAP PT, Combination	302
		PAPKPT	PAP PT, SurePath	302
		PAPLPT	PAP PT, Combination	302
		PAPMPT	PAP PT, ThinPrep	302
Cytopathology, nongynecologic		FNA/FNA1	Fine-Needle Aspiration-Online	308
		FNAG/FNAG1	Fine-Needle Aspiration-Glass	309
		NGC/NGC1	Nongynecologic Cytopath Edu Prgm	307
Cytopreparation differential manual		HFC	Hemocytometer Fluid Count	152
Dabigatran		DBGN	Anticoagulant Monitoring, Dabigatran	165
D-dimer, qualitative		CGDF	Coagulation, D-dimer/FDP	162
		CGL	Coagulation, Limited	162
D-dimer, quantitative	X	CGDF	Coagulation, D-dimer/FDP	162
	X	CGL	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
		LN42	D-dimer Cal Ver/Lin	133
	X	PCARM, PCARMX	Plasma Cardiac Markers	67
		POC12	Competency Plasma Cardiac Markers	53
Delta-9-THC		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		THCB	Blood Cannabinoids	109
		UT	Urine Toxicology	98
Delta-9-THC-COOH		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Delta-9-THC-COOH (cont.)		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		THCB	Blood Cannabinoids	109
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
		UTCO	Urine Toxicology Carryover	136
Demoxepam		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
Deoxypyridinoline (DPD)		BU	Bone and Mineral, Urine	87
Dermatopathology		DPATH/ DPATH1	Online Digital Slide Program	283
Dermatopathology immunohistochemistry		DPIHC	Dermatophathology Immunohistochemistry	295
Dermatophyte identification	X	**F**	Mycology and Aerobic Actinomycetes	193
Desipramine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
	X	ZT	TDM, Special	60
Desmethylclomipramine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Desmethylsertraline		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Dextromethorphan		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
DHEA sulfate	X	Y/YY	Sex Hormones	86
DIA (Dimeric inhibin A)	X	FP/FPX	Maternal Screen	89
Diazepam		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Differential, automated	X	**FH1-FH4, FH9, FH10, FH13, FH16**	Hematology Automated Differential	138
		FH1P-FH4P, FH9P, FH10P, FH13P, FH16P		138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
Differential (bone marrow), manual		BMD	Bone Marrow Cell Differential	141
Differential (fluid), manual		HFC, HFCI	Hemocytometer Fluid Count	152–153
Differential (peripheral blood), manual		EHE1	Expanded Virtual Peripheral Blood Smear	146
		VPBS	Virtual Peripheral Blood Smear	145
Digital slide program in fine-needle aspiration, online		FNA/FNA1	Online Digital Slide Program	308
Digoxin	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Digoxin, free		CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Dihydrocodeine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Diltiazem		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Dilute prothrombin time		CGE/CGEX	Coagulation, Extended	163
Dilute Russell's viper venom time		CGS1	Coag Special, Series 1	164
Dimeric inhibin A (DIA)	X	FP, FPX	Maternal Screen	89
Diphenhydramine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Diphenylhydantoin			See Phenytoin	
Direct antiglobulin testing	X	DAT	Direct Antiglobulin Testing	234
		TMCAD	Transfusion Medicine, Competency Assessment	235

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Direct bilirubin	X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
	X	NB, NB2	Neonatal Bilirubin	67
Disease association/ drug risk		DADR1, DADR2	Disease Association/ Drug Risk	249
Disopyramide		CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
DMD/Becker (*DMD* gene)	X	MGL2	Molecular Genetics	259–260
DNA analysis	X	DML	HLA Molecular Typing	246
	X	PARF	Parentage/Relationship	243
DNA content/cell cycle analysis		FL, FL2	Flow Cytometry	222
DNA extraction and amplification		MHO5	Molecular Oncology Hematologic	273, 276
DNA fingerprinting		IDN, IDO	Nucelic Acid Amp, Organisms	205
DNA mismatch repair		HQMMR	HistoQIP Mismatch Repair IHC	291
		MMR	DNA Mismatch Repair	298
DNA sequencing		SEC, SEC1	DNA Sequencing	261
Dopamine	X	N/NX	Urine Chemistry, Special	71
Doxepin		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Doxylamine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
DPYD		PGX3	Pharmacogenetics	262
Duloxetine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Ecgonine ethyl ester		FTC	Forensic Toxicology, Criminalistics	107
Ecgonine methyl ester		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
Ecgonine methyl ester (cont.)		UT	Urine Toxicology	98
***E. coli* O157**		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
eGFR		LN24	Creatinine Accuracy CalVer/Lin	129
EGFR—epidermal growth factor receptor	X	EGFR	Mutation Testing	274
	X	MTP	Multigene Tumor Panel	275
Electronic crossmatch		EXM, EXM2	Electronic Crossmatch	229, 231
Electrophoresis	X	HG	Hemoglobinopathy	142
		LPE	Lipoprotein Electrophoresis	78
	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76
		SPE	Protein Electrophoresis	78
		UBJP	Urinary Bence Jones Proteins	78
Elution, antibody		ELU	Eluate	234
		TMCAE	Eluate Competency Assessment	235
Embryology		EMB	Embryology	159
Enteroaggregative *E. coli* (EAEC)		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
***Enterobacter cloacae* complex**	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Enterococcus faecalis		JIP	Joint Infection Panel	206
Enterococcus faecium		JIP	Joint Infection Panel	206
Enteropathogenic *E. coli* (EPEC)		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
Enterotoxigenic *E. coli* (ETEC)		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
Enterovirus		ID1	Nucleic Acid Amp, Viruses	200
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**IDR**	Infectious Disease, Respiratory Panel	208
	X	**VR1**	Virology Culture	199
Eosinophils, urine		SCM2	Special Clinical Microscopy	154
Ephedrine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Epidermal growth factor receptor (*EGFR*)	X	EGFR	Mutation Testing	274
	X	MTP	Multigene Tumor Panel	275
Epinephrine	X	N/NX	Urine Chemistry, Special	71
Epithelial cells, urine, semiquantitative		UAA1	Automated Urinalysis	151
Epstein-Barr virus (EBV)		ID1	Nucleic Acid Amp, Viruses	200
	X	ISH	In Situ Hybridization	272
		VLS, VLS2	Viral Load	204
		VR3	Antibody Detection—Infectious Disease Serology	211
ER by immunohistochemistry	X	PM2	ER, PgR by Immunohistochemistry	296
Erythrocyte sedimentation rate		ESR, ESR1, ESR2, ESR3	Erythrocyte Sedimentation Rate	142
Erythropoietin		EPO	Erythropoietin	90
Escherichia coli	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
***Escherichia coli* K1**		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
***Escherichia coli* O157**		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
Estazolam		DFC	Drug-Facilitated Crime	111
Estradiol		ABS	Accuracy-Based Testosterone and Estradiol	115
		LN8	Reproductive Endocrinology Cal Ver/Lin	125
	X	Y/YY	Sex Hormones	86
Estriol, unconjugated (uE3)	X	FP/FPX	Maternal Screen	89
	X	Y/YY	Sex Hormones	86
Estrogen receptors by immunohistochemistry	X	PM2	ER, PgR by Immunohistochemistry	296
Ethanol	X	**AL1**	Whole Blood Alcohol/Volatiles	104
	X	**AL2**	Serum Alcohol/Volatiles	104
		LN11	Serum Ethanol Cal Ver/Lin	125
Ethanol, urine		UDS, UDS6	Urine Drug Screen	100
Ethanol, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Ethosuximide	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Ethyl glucuronide (EtG)		ETB	Ethanol Biomarkers	105
Ethyl sulfate (EtS)		ETB	Ethanol Biomarkers	105
Ethylene glycol		AL1	Whole Blood Alcohol/Volatiles	104
		AL2	Serum Alcohol/Volatiles	104
Etizolam		DFC	Drug-Facilitated Crime	111
Everolimus		EV	Everolimus	60
Factor II		CGE/CGEX	Coagulation, Extended	163
Factor II (*F2* gene)	X	MGL1	Molecular Genetics	259–260
	X	TPM	Thrombophilia Mutations	263
Factor V		CGE/CGEX	Coagulation, Extended	163
Factor V Leiden (*F5* gene)	X	MGL1	Molecular Genetics	259–260
	X	TPM	Thrombophilia Mutations	263
Factor VII		CGE/CGEX	Coagulation, Extended	163
Factor VIII		CGE/CGEX	Coagulation, Extended	163
		CGS3	Coag Special, Series 3	164
Factor VIII inhibitor		CGS3	Coag Special, Series 3	164
Factor IX		CGE/CGEX	Coagulation, Extended	163
Factor X		CGE/CGEX	Coagulation, Extended	163
Factor XI		CGE/CGEX	Coagulation, Extended	163
Factor XII		CGE/CGEX	Coagulation, Extended	163
Factor XIII		CGE/CGEX	Coagulation, Extended	163
Familial dysautonomia (*ELP1* gene)	X	MGL4	Molecular Genetics	259–260
Fanconi anemia, complementation grp. C (*FANCC* gene)	X	MGL4	Molecular Genetics	259–260
Fecal calprotectin		FCAL	Fecal Calprotectin	77
Fecal fat, qualitative		FCFS	Fecal Fat	77
Fecal lactoferrin		FLAC	Fecal Lactoferrin	186
Fecal occult blood		OCB	Occult Blood	153
		OCBQ	Quality Cross Check, Occult Blood	47
Fentanyl		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Fern test (vaginal)	X	CMMP	Clinical Microscopy, Misc	149

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Ferritin	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	K, KK	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Fetal fibronectin	X	FF	Fetal Fibronectin	90
Fetal hemoglobin (gastric fluid)		APT	Fetal Hemoglobin	152
Fetal hemoglobin identification	X	HG	Hemoglobinopathy	142
Fetal membrane rupture		ROM1	Fetal Membranes/ Preterm Labor	154
Fetal red cell quantitation	X	HBF	Fetal Red Cell Detection	234
		TMCAF	Transfusion Medicine, Competency Assessment	236
Fetal screen (Rosette testing)	X	HBF	Fetal Red Cell Detection	234
		TMCAF	Transfusion Medicine, Competency Assessment	236
Fibrin degradation products, plasma		CGDF	Coagulation, D-dimer/ FDP	162
		CGL	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
Fibrin degradation products, serum		CGDF	Coagulation, D-dimer/ FDP	162
		CGL	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
Fibrin monomer		CGL	Coagulation, Limited	162
		CGDF	Coagulation, D-dimer/ FDP	162
Fibrinogen	X	**CGL**	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
		LN44	Fibrinogen, Cal Ver/Lin	133
Fibrinogen antigen		CGE/CGEX	Coagulation, Extended	163
Finegoldia magna		JIP	Joint Infection Panel	206
Fine-needle aspiration, digital slide program		FNA/FNA1	Online Digital Slide Program	308
Fine-needle aspiration, glass slides		FNAG/FNAG1	Fine-Needle Aspiration	309
FISH for brain/glioma		CYJ	Fluorescence In Situ Hybridization and Interpretation on Site, Brain/Glioma Tissue	253
FISH for breast carcinoma hybridization and interpretation on site (*HER2* gene amplification)	X	CYH	Fluorescence In Situ Hybridization and Interpretation on Site, Breast Cancer	253
FISH for breast carcinoma, interpretation only (*HER2* gene amplification)		CYHI	Interpetation Only, *HER2* FISH, Breast Cancer	295
FISH for constitutional and hematologic disorders		CYF	Fluorescence In Situ Hybridization and Interpretation on Site	252
FISH for lymphoma		CYL	Fluorescence In Situ Hybridization and Interpretation on Site, Lymphoma	253
FISH for paraffin-embedded tissue	X	CYH	Fluorescence In Situ Hybridization and Interpretation on Site, Breast Cancer	253
		CYJ	Fluorescence In Situ Hybridization and Interpretation on Site, Brain/Glioma Tissue	253
		CYK	Fluorescence In Situ Hybridization and Interpretation on Site, Solid Tumor	253
		CYL	Fluorescence In Situ Hybridization and Interpretation on Site, Lymphoma	253
FISH for solid tumor		CYK	Fluorescence In Situ Hybridization and Interpretation on Site, Solid Tumor	253
FISH for urothelial carcinoma hybridization and interpretation	X	CYI	Fluorescence In Situ Hybridization and Interpretation on Site, Urothelial Carcinoma	252
Flow cytometry, post-immunotherapy analysis		FL6	Flow Cytometry, Post-Immunotherapy Analysis	223
Fluconazole		AFD	Antifungal Drugs Monitoring	109
Flunitrazepam		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Fluorescent microscope check		I	Instrumentation	134
Fluoxetine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
Folate, RBC	X	FOL	RBC Folate	90
Folate, serum	X	K, KK	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Folate, serum (cont.)		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Follicle-stimulating hormone (FSH)		ABS	Accuracy-Based Testosterone, Estradiol	115
		LN8	Reproductive Endocrinology Cal Ver/Lin	125
	X	Y/YY	Sex Hormones	86
Fondaparinux		FNPX	Anticoagulant Monitoring, Fondaparinux	165
Forensic pathology		FR/FR1	Forensic Pathology	312
Forensic toxicology		FTC	Forensic Toxicology, Criminalistics	107
Fragile X (*FMR1* gene)	X	MGL1	Molecular Genetics	259–260
Free beta hCG		FP1B	First Trimester Maternal Screening, Free Beta	89
Free Kappa/Lambda ratio		SFLC	Serum Free Light Chains	221
Free testosterone		DY	Sex Hormones	86
Friedreich ataxia (*FXN* gene)	X	MGL2	Molecular Genetics	259–260
Fructosamine		FT	Fructosamine	77
Fungal culture		CBT	Cord Blood Testing	237
		SCP	Stem Cell Processing	237
Fungal serology		FSER	Fungal Serology	195
Fungus identification	X	**F**	Mycology and Aerobic Actinomycetes	193
	X	**F1**	Yeast	193
	X	**F3**	*Candida* culture	194
Gabapentin		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
		ZE	Therapeutic Drug Monitoring, Extended	60
Galactomannan		FGAL	Galactomannan	194
Gamma globulin		M, OL1	CSF Chemistry	76
		SPE	Serum Electrophoresis	78
Gamma glutamyl transferase (GGT)	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Gamma hydroxybutyrate (GHB)		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
***Gardnerella vaginalis*, DNA probe**	X	**VS**	Vaginitis Screen	189
Gastric occult blood		GOCB	Gastric Occult Blood	152
Gastric pH		GOCB	Gastric Occult Blood	152
Gastrin	X	ING	Insulin, Gastrin, C-Peptide, PTH	88
Gaucher disease (*GBA* gene)	X	MGL4	Molecular Genetics	259–260
Genomic copy number array		CYCGH	Constitutional Microarray Analysis	254
Gentamicin	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Giardia		GIP	Gastrointestinal Panel	210
		GIP5	Gastrointestinal Panel	210
***Giardia* immunoassay, preserved specimen**	X	**P, P3, P4, P5**	Parasitology	196
Giemsa stain	X	**BP**	Blood Parasite	197
	X	**P**	Parasitology	196
Glioma by FISH		CYJ	Fluorescence In Situ Hybridization and Interpretation on Site, Brain/Glioma Tissue	253
Glucose		ABGIC	Accuracy-Based Glucose, Insulin, and C-Peptide	117
	X	**AQ2, AQ4**	Critical Care Blood Gas	94
		AQ2Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN13, LN13C	Blood Gas Cal Ver/Lin	126
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Glucose, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76
Glucose, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		LN6	Urine Chemistry Cal Ver/Lin	124
		POC3	POC Urine Dipstick Competency	52
	X	U	Urine Chemistry-General	70
Glucose, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Glucose, whole blood	X	HCC	Waived Combination	68
		HCC2	Waived Combination	68
	X	LCW	Chemistry-Ltd, Waived	66
		LN17	Whole Blood Glucose Cal Ver/Lin	127
		POC2	POC Glucose Competency	52
		POC7	POC/Waived Glucose and Hemoglobin Competency	52
		WBGQ	Quality Cross Check, Whole Blood Glucose	41
Glucose-6-phosphate dehydrogenase, qualitative and quantitative		G6PDS	Glucose-6 Phosphate Dehydrogenase	77
Glutamic acid, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Glutamine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Glutaraldehyde, urine		DAI	Urine Drug Adulterant/ Integrity Testing	101
Glycated serum albumin		GSA	Glycated Serum Albumin	66
Glycine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Glycogen storage disease type IA (*G6PC* gene)	X	MGL4	Molecular Genetics	259–260
Glycohemoglobin	X	GH2, GH5, GH5I	Hemoglobin A_{1c}	65
		GHQ	Quality Cross Check, Hemoglobin A_{1c}	42
		LN15	Hemoglobin A_{1c} Cal Ver/Lin	126
Glycosaminoglycans (mucopolysaccharides)	X	BGL	Biochemical Genetics	255
Gram stain	X	**D**	Bacteriology	175
	X	**D2, D3, RMC**	Throat, Urine, GC Cultures	177–178
	X	**D5**	Gram Stain	179
		VGS1	Virtual Gram Stain Basic	181
		VGS2	Virtual Gram Stain Advanced	181
		VS2	Vaginitis Screen, Virtual Gram stain	191
Group A *Streptococcus* antigen detection	X	**D**	Bacteriology	175
	X	**D6**	Rapid Group A Strep	181
	X	D9	Rapid Group A Strep, Waived	181
	X	MC4	Urine Colony Count Combination	179
		POC4	POC Strep Screen Competency	52
	X	**RMC**	Routine Microbiology Combination	178
Group B *Streptococcus*	X	**D8**	Group B Strep	182
Growth hormone	X	Y/YY	Sex Hormones	86
Gyn cytopathology			See Cytopathology GYN Proficiency Testing	
Gyn cytopathology education			See Cytopathology GYN Education	
Haemophilus influenzae		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Haptoglobin	X	IG/IGX	Immunology, General	214
	X	S2/S4	Immunology, Special	215
HBeAg	X	**VM2**	Viral Markers, Series 2	240
HBsAg	X	**VM1**	Viral Markers, Series 1	240
HBV	X	HBVL, HBVL5	Hepatitis Viral Load	203
	X	NAT	Nucleic Acid Testing	242
HCV	X	HCV2	Hepatitis Viral Load, Genotyping and Qualitative	203
		LN45	HCV Viral Load Cal Ver/ Lin	132
	X	NAT	Nucleic Acid Testing	242
HDL cholesterol		ABL	Accuracy-Based Lipid	114
	X	**C1, C3, C3X, C4, CZ, CZ3X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	LCW	Chemistry-Ltd, Waived	66

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
HDL cholesterol (cont.)		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Helicobacter pylori	X	HPS	*H. pylori* Antigen, Stool	186
	X	S2, S4	*H. pylori* IgG Antibody	215
	X	S5	*H. pylori* IgG Antibody	215
	X	VR3	*H. pylori* IgG Antibody	211
Hematocrit	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P**	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
	X	HCC2	Waived Combination	68
	X	**HE, HEP**	Basic Hematology	138
		POC10, POC11	POC Competency Blood Gases	53
	X	**SO**	Blood Oximetry	96
		SOQ	Quality Cross Check, Blood Oximetry	44
Hematologic disorders by FISH		CYF	Fluorescence In Situ Hybridization and Interpretation on Site	252
Hematology bone marrow case studies		BMD	Bone Marrow Cell Differential	141
Hematology case studies		VPBS	Virtual Periperal Blood Smear	145
Hematology peripheral blood case studies		EHE1	Expanded Virtual Peripheral Blood Smear	146
Hematopathology online education		HPATH, HPATH1	Hematopathology Online Education	147
Hemochromatosis (*HFE* gene)	X	MGL1	Molecular Genetics	259–260
Hemocytometer fluid count	X	HFC, HFCI	Hemocytometer Fluid Count	152–153
Hemoglobin	X	**FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P**	Hematology Automated Differential	138

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Hemoglobin (cont.)		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
	X	HCC	Waived Combination	68
	X	HCC2	Waived Combination	68
	X	**HE, HEP**	Basic Hematology	138
		LN9	Hematology Cal Ver/Lin	125
		POC7	POC/Waived Glucose and Hemoglobin Competency	52
	X	**SO**	Blood Oximetry	96
		SOQ	Quality Cross Check, Blood Oximetry	44
Hemoglobin A_{1c}	X	GH2, GH5, GH5I	Hemoglobin A_{1c}	65
		GHQ	Quality Cross Check, Hemoglobin A_{1c}	42
		LN15	Hemoglobin A_{1c} Cal Ver/Lin	126
Hemoglobin A2 quantitation	X	HG	Hemoglobinopathy	142
Hemoglobin electrophoresis	X	HG	Hemoglobinopathy	142
Hemoglobin, estimated	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
		POC10, POC11	POC Competency Blood Gases	53
Hemoglobin F quantitation	X	HG	Hemoglobinopathy	142
Hemoglobin, plasma		PHG	Plasma Hemoglobin	78
Hemoglobin S/C	X	HGM	Hemoglobinopathies Genotyping	258
	X	MGL2	Molecular Genetics	259–260
Hemoglobin, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Hemolytic complement, total		CH50	Total Hemolytic Complement	220
Hemosiderin, urine		SCM1	Special Clinical Microscopy	154
Heparin assay		CGS4	Coag Special, Series 4	164
Heparin-induced thrombocytopenia		CGE/CGEX	Coagulation, Extended	163
		CGS5	Coag Special, HIT	164
Heparin, low molecular weight		LN36	Heparin Cal Ver/Lin	131

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Heparin, unfractionated		LN36	Heparin Cal/Ver Lin	131
Heparin/platelet Factor IV		CGS5	Coag Special, HIT	164
Hepatitis B virus	X	HBVL, HBVL5	Hepatitis Viral Load	203
Hepatitis C virus	X	HCV2	Hepatitis Viral Load, Genotyping and Qualitative	203
		LN45	HCV Viral Load Cal Ver/Lin	132
HER2 by immunohistochemistry	X	HER2	HER2 by Immunohistochemistry	296
HER2 by molecular testing		MTP	Multigene Tumor Panel	275
HER2, gastric		GHER2	Gastric HER2	296
HER2 gene amplification by FISH, hybridization and interpretation on site	X	CYH	Fluorescence In Situ Hybridization and Interpretation on Site, Breast Cancer	253
HER2 gene amplification by FISH, interpretation only		CYHI	Interpetation Only, *HER2* FISH, Breast Cancer	295
HER2 gene amplification by ISH	X	ISH2	In Situ Hybridization	272
HER2 non breast immunohistochemistry		PM5	Immunohistochemistry TMA	294
Herpes simplex virus (HSV)	X	**HC4**	HSV Culture	200
		ID1	Nucleic Acid Amp, Viruses	200
	X	**ID5**	HSV, Molecular	203
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen by DFA	199
	X	VR3	Antibody Detection—Infectious Disease Serology	211
HHV6		ID1	Nucleic Acid Amp, Viruses	200
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
		VLS2	Viral Load	204
HHV8		ID1	Nucleic Acid Amp, Viruses	200
High-sensitivity C-reactive protein	X	HSCRP	hsCRP	66
		LN21	High-Sensitivity C-Reactive Protein Cal Ver/Lin	128
Histotechnology quality improvement		HQIP	HistoQIP	287
Histotechnology quality improvement, biopsy		HQIPBX, HQPBX1, HQBX2, HQBX3, HQBX4	HistoQIP Biopsy Series	292–293
Histotechnology quality improvement, central nervous system IHC		HQNEU	HistoQIP Central Nervous System IHC	288
Histotechnology quality improvement, IHC		HQIHC	HistoQIP IHC	291
Histotechnology quality improvement, mismatch repair IHC		HQMMR	HistoQIP Mismatch Repair IHC	291
Histotechnology quality improvement, non-small cell lung carcinoma IHC		HQNSC	HistoQIP Non-small Cell Lung Carcinoma IHC	292
Histotechnology quality improvement, ISH		HQISH	HistoQIP In Situ Hybridization (HPV/EBV)	288
Histotechnology quality improvement, melanoma IHC		HQMEL	HistoQIP Melanoma IHC	289
Histotechnology quality improvement, whole slide image		HQWSI	HistoQIP Whole Slide Image	290
HIV	X	HIVG, HV2	HIV Viral Load	203
		LN39	HIV Viral Load Cal Ver/Lin	132
	X	NAT	Nucleic Acid Testing	242
HIV genotyping		HIVG	HIV Viral Genotyping	203
HIV-1 p24 antigen	X	VM3	Viral Markers-Series 3	240
HIV-1 p24 antigen, **anti-HIV-1/2**	X	**VM6, VM6X**	Viral Markers-Series 6	241
HLA-A, -B, -C (class I/II) antibody identification	X	MXB, MXC, MXE	HLA Analysis, Class I/II	246
HLA-(class I/II) antibody screen		MXB, MXC, MXE	HLA Analysis, Class I/II	246
HLA-(class I/II) crossmatching	X	MXB, MXC	HLA Analysis, Class I/II	246
HLA-B27 typing	X	B27	HLA-B27 Typing	246
*HLA-B*57:01*		DADR1	Disease Association, Drug Risk	249
HLA-B*58:01		DADR1	Disease Association, Drug Risk	249
HLA-DQA1*03/DQB1*03:02		DADR2	Disease Association, Drug Risk	249
HLA-DQA1*05/DQB1*02		DADR2	Disease Association, Drug Risk	249
HLA molecular typing	X	DML	HLA Molecular Typing	246
Homocysteine quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
	X	HMS	Homocysteine	66
		LN16	Homocysteine Cal Ver/Lin	127

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Homovanillic acid	X	N/NX	Urine Chemistry-Special	71
HPV (cytopathology), high-risk	X	**CHPVD**	Digene Specimen Transport Medium	305
	X	**CHPVJ**	Mixed Medium	305
	X	**CHPVK**	SurePath Preservative Fluid Transport Medium	305
	X	**CHPVM**	ThinPrep PreservCyt Transport Medium	305
		HPV	Digene Hybrid Capture Technology Only	200
	X	ISH	In Situ Hybridization	272
HSV	X	**HC4**	HSV Culture	200
		ID1	Nucleic Acid Amp, Viruses	200
	X	**ID5**	Herpes Simplex Virus, Molecular	203
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen by DFA	199
	X	VR3	Antibody Detection—Infectious Disease Serology	211
Human chorionic gonadotropin (hCG), serum	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**FP/FPX, FP1T**	Maternal Screen	89
	X	**HCG, IL**	Immunology	214
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
		LN8	Reproductive Endocrinology Cal Ver/Lin	125
		SCO	Serum Carryover	136
Human chorionic gonadotropin (hCG), urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		POC1	POC hCG Competency	52
		POC3	POC Urine Dipstick Competency	52
	X	UHCG	Urine HCG	154
Human epididymis protein 4		HUEP	Human Epididymis Protein 4	91
Human herpesvirus 6		ID1	Nucleic Acid Amp, Viruses	200
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
		VLS2	Viral Load	204
Human herpesvirus 8		ID1	Nucleic Acid Amp, Viruses	200
Human immuno-deficiency virus (HIV)		HIVG	HIV Genotyping	203
	X	HIVG, HV2	HIV Viral Load	203
		LN39	HIV Viral Load Cal Ver/Lin	132
Human metapneumovirus		ID2	Nucleic Acid Amp, Respiratory	202
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
Human papillomavirus (cytology) high-risk	X	**CHPVD**	Digene Specimen Transport Medium	305
	X	**CHPVJ**	Mixed Medium	305
	X	**CHPVK**	SurePath Preservative Fluid Transport Medium	305
	X	**CHPVM**	ThinPrep PreservCyt Transport Medium	305
		HPV	Digene Hybrid Capture Technology Only	200
	X	ISH	In Situ Hybridization	272
		CHPVJ	Mixed Medium	305
		CHPVM	ThinPrep PreservCyt Transport Medium	305
Human parechovirus		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
Huntington disease (*HTT* gene)	X	MGL2	Molecular Genetics	259–260
Hydrocodone		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Hydromorphone		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Hydroxyproline quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Hydroxybupropion		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Hydroxyzine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Ibuprofen		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
IDH1		GLI	Glioma	275
IDH2		GLI	Glioma	275
IgA	X	**IG/IGX**	Immunology, General	214
		LN7	Immunology Cal Ver/Lin	124
IgA, electrophoresis	X	SPE	Protein Electrophoresis	78
IgD		S2, S4	Immunology, Special	215
IgE	X	**IG/IGX**	Immunology, General	214
	X	**K/KK**	Ligand-General	84
	X	**SE**	Diagnostic Allergy	219
IgE allergen-specific, quantitative		SE	Diagnostic Allergy	219
IgE multi-allergen screen	X	SE	Diagnostic Allergy	219
IGF-1 (somatomedin C)	X	BGS	Bone and Growth	87
	X	Y/YY	Sex Hormones	86
IgG	X	**IG/IGX**	Immunology, General	214
		LN7	Immunology Cal Ver/Lin	124
		S2, S4	Immunology, Special	215
IgG subclass proteins		S2, S4	Immunology, Special	215
IgG, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76
IgG, electrophoresis	X	SPE	Protein Electrophoresis	78
IGHV		IGHV	Mutation Analysis	272
IgM	X	**IG/IGX**	Immunology, General	214
		LN7	Immunology Cal Ver/Lin	124
IgM, electrophoresis	X	SPE	Protein Electrophoresis	78
IL-2		CTKN	Cytokines	218
IL-6		CTKN	Cytokines	218
IL-8		CTKN	Cytokines	218
IL-10		CTKN	Cytokines	218
IL28B		PGX1	Pharmacogenetics	262
Imipramine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
	X	ZT	TDM, Special	60
Immature granulocyte parameter		FH9, FH9P	Hematology Automated Differential	138
Immature platelet fraction (IPF)		FH9, FH9P	Hematology Automated Differential	138
Immature reticulocyte fraction (IRF)		RT, RT3, RT4	Reticulocyte	143
Immunohistochemistry		BRAFV	BRAF V600E	297
		CD30	CD30 Immunohistochemistry	297
		DPIHC	Dermatophathology Immunohistochemistry	295
		GHER2	Gastric HER2	296
	X	HER2	HER2 by Immunohistochemistry	296
		KI67	Ki-67 Immunohistochemistry TMA	299
		MK	Immunohistochemistry	294
		MMR	DNA Mismatch Repair	298
		MYCB	c-Myc/Bcl-2 Immunohistochemistry TMA	299
		P53	p53 Immunohistochemistry TMA	295
		PDL1	PD-L1 Immunohistochemistry	298
		PM1	CD117 by Immunohistochemistry	294
	X	PM2	ER, PR by Immunohistochemistry	296
		PM3	CD20 by Immunohistochemistry	297
		PM5	Immunohistochemistry TMA	294
		PM6	Anaplastic Lymphoma Kinase IHC	297
In situ hybridization	X	ISH	In Situ Hybridization	272
	X	ISH2	In Situ Hybridization HER2	272
India ink		IND	India Ink	195

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Infectious disease, pneumonia panel	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
Infectious mononucleosis (IM)	X	**IL, IM**	Immunology	214
	X	IMW	Infectious Mononucleosis, Waived	215
Influenza virus		ID2	Nucleic Acid Amp, Resp	202
	X	**ID3**	Nucleic Acid Amplification, Respiratory Limited	203
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
		POC8	POC Influenza A/B Ag	52
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen Detection by DFA	199
	X	**VR4**	Viral Antigen Detection by EIA and Latex	199
Informatics		ICBE, ICBE1	Informatics Case-Based Education	15
Inherited cancer sequencing panel		ICSP	Inherited Cancer Sequencing Panel	258
INSM1		PM5	Immunohistochemistry TMA	294
Instrument function		I	Instrumentation	134
Instrument linearity		I	Instrumentation	134
		LN11	Serum Ethanol Cal Ver/Lin	125
		LN12	C-Reactive Protein Cal Ver/Lin	126
		LN13, LN13C	Blood Gas Cal Ver/Lin	126
		LN15	Hemoglobin A_{1c} Cal Ver/Lin	126
		LN16	Homocysteine Cal Ver/Lin	127
		LN17	Whole Blood Glucose Cal Ver/Lin	127
		LN18, LN19	Reticulocyte Cal Ver/Lin	127
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN20	Urine Albumin Cal Ver/Lin	128
		LN21	High-Sensitivity C-Reactive Protein Cal Ver/Lin	128
		LN22	Flow Cytometry Cal Ver/Lin	128
		LN23	PSA Cal Ver/Lin	128
		LN24	Creatinine Accuracy Cal Ver/Lin	129
		LN25	Troponin I Cal Ver/Lin	129

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Instrument linearity (cont.)		LN27	Troponin T Cal Ver/Lin	129
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		LN3	TDM Cal Ver/Lin	123
		LN30	BNP Cal Ver/Lin	129
		LN31	Immunosuppressive Drugs Cal Ver/Lin	130
		LN32	Ammonia Cal Ver/Lin	130
		LN33	Serum Myoglobin Cal Ver/Lin	130
		LN34	Tumor Markers Cal Ver/Lin	131
		LN35	Thrombophilia Cal Ver/Lin	131
		LN36	Heparin Cal Ver/Lin	131
		LN37	von Willebrand Factor Ag Cal Ver/Lin	131
		LN38	CMV Viral Load Cal Ver/Lin	132
		LN39	HIV Viral Load Cal Ver/Lin	132
		LN40	Vitamin D Cal Ver/Lin	132
		LN41	Procalcitonin Cal Ver/Lin	132
		LN42	D-Dimer Cal Ver/Lin	133
		LN44	Fibrinogen Cal Ver/Lin	133
		LN45	HCV Viral Load Cal Ver/Lin	132
		LN46	C-Peptide/Insulin Cal Ver/Lin	133
		LN47	High-Sensitivity Troponin T Cal Ver/Lin	133
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
		LN6	Urine Chemistry Cal Ver/Lin	124
		LN7	Immunology Cal Ver/Lin	124
		LN8	Reproductive Endocrinology Cal Ver/Lin	125
		LN9	Hematology Cal Ver/Lin	125
Insulin		ABGIC	Accuracy-Based Glucose, Insulin, and C-Peptide	117
	X	ING	Insulin, Gastrin, C-Peptide, PTH	88
		LN46	C-Peptide/Insulin Cal Ver/Lin	133
Interferon (IFN) gamma		CTKN	Cytokines	218

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Interleukin (IL)-1 beta		CTKN	Cytokines	218
International normalized ratio (INR)	X	CGB	Basic Coagulation	162
	X	CGL	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
		CGS1	Coag Special, Series 1	164
		CGS4	Coag Special, Series 4	164
		POC6	POC PT/INR, CoaguChek XS Plus	52
		WP10	Whole Blood Coagulation	170
	X	WP3, WP4, WP6, WP9	Whole Blood Coagulation	170
Ionized calcium	X	AQ, AQ2, AQ3, AQ4	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	C3, CZ, CZX	Chemistry and TDM	56–58
		POC10, POC11	POC Competency Blood Gases	53
Iron	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Isoleucine quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Isopropanol	X	AL1	Whole Blood Alcohol/ Volatiles	104
	X	AL2	Serum Alcohol/Volatiles	104
Itraconazole		AFD	Antifungal Drugs Monitoring	109
JC virus		ID1T	Nucleic Acid Amp, JC and BK	200
Jo-1 (antihistidyl t-RNA synthetase)		RDS	Rheumatic Disease Special	219
Kappa/Lambda	X	ISH	In Situ Hybridization	272
Kappa/Lambda ratio		IG/IGX	Immunology, General	214
		S2, S4	Immunology, Special	215
Karyotype nomenclature	X	CY, CYBK	Cytogenetics	252
Ketamine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
Ketamine (cont.)		T	Toxicology	98
		UT	Urine Toxicology	98
Ketones, serum		KET	Ketones	66
Ketones, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Ki-67		KI67	Ki-67 Immunohistochemistry TMA	299
Kidney stone risk assessment		KSA	Kidney Stone Risk Assessment	71
Kingella kingae		JIP	Joint Infection Panel	206
KIT		KIT	*KIT/PDGFRA*	274
		MTP	Multigene Tumor Panel	275
Klebsiella aerogenes	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Klebsiella oxytoca	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
***Klebsiella pneumoniae* group**	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
KOH prep (skin)	X	CMMP	Clinical Microscopy, Misc	149
KOH prep (skin or vaginal)	X	FSM	Fungal Smear	195
KRAS	X	KRAS	Colorectal Cancer Mutation	274
	X	MTP	Multigene Tumor Panel	275
Laboratory preparedness exercise		LPX	Laboratory Preparedness Exercise	187
Lacosamide		ZE	Therapeutic Drug Monitoring, Extended	60
Lactate	X	AQ, AQ2, AQ3, AQ4	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		LN13C	Blood Gas Cal Ver/Lin	126
		POC10, POC11	POC Competency Blood Gases	53
Lactate, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Lactate dehydrogenase (LD)	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		SCO	Serum Carryover	136
Lactate dehydrogenase (LD), CSF	X	M, OLI	CSF Chemistry and Oligclonal Bands	76
Lamellar body count		LBC	Lamellar Body Count	153
Lamotrigine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
		ZE	Therapeutic Drug Monitoring, Extended	60
Large unclassified cells (LUC)		FH4, FH4P	Hematology Automated Differential	138
LD isoenzymes	X	**CRTI, HCRTI**	Cardiac Markers	62
LD1/LD2 ratio	X	**CRTI, HCRTI**	Cardiac Markers	62
LDL cholesterol	X	ABL	Accuracy-Based Lipid	114
LDL cholesterol, measured	X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
LDL cholesterol, waived	X	LCW	Chemistry-Ltd, Waived	66
Lead (blood)	X	**BL**	Blood Lead	105
Lead, urine		TMU	Trace Metals, Urine	106
Legionella		LBAS	*Legionella* Ag	182
Legionella pneumophila		IDN, IDO	Nucleic Acid Amp, Organisms	205
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
Leucine quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Leukemia/lymphoma immunophenotype		FL3	Flow Cytometry	222
Leukemia/lymphoma interpretation only		FL5	Flow Cytometry Interpretation Only	223

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Leukocyte esterase, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Leukocyte-reduced platelets		TRC	Transfusion-Related Cell Count	234
Leukocyte-reduced RBC		TRC	Transfusion-Related Cell Count	234
Leukocyte, stool, Wright-Giemsa		CMMP	Clinical Microscopy, Misc	149
Levetiracetam		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
		ZE	Therapeutic Drug Monitoring, Extended	60
Levorphanol		T	Toxicology	98
		UT	Urine Toxicology	98
Lidocaine	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FTC	Forensic Toxicology, Criminalistics	107
		LN3	TDM Cal Ver/Lin	123
		T	Toxicology	98
		UT	Urine Toxicology	98
Lipase	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Lipids		ABL	Accuracy-Based Lipid	114
	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Lipoprotein (a)	X	ABL	Accuracy-Based Lipid	114
	X	C1, C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Lipoprotein-associated phospholipase		PLA	Lp-PLA_2	77
Lipoprotein electrophoresis		LPE	Lipoprotein Electrophoresis	78
Listeria monocytogenes		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
Lithium	X	**C1, C3, C3X, CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Liver-kidney microsomal antibody		LKM	Liver-Kidney Microsomal Antibody	219
Lorazepam		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Lorazepam glucuronide		DMPM	Drug Monitoring for Pain Management	110
Lupus anticoagulant (screen, conf)		CGS1	Coag Special, Series 1	164
Luteinizing hormone (LH)		ABS	Accuracy-Based Testosterone, Estradiol	115
		LN8	Reproductive Endocrinology Cal Ver/ Lin	125
	X	Y/YY	Sex Hormones	86
Lysine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Lyme disease		TTD	Tick-Transmitted Disease	211
Lymphocyte immunophenotyping	X	FL, FL1	Flow Cytometry	222
Lymphoma by FISH		CYL	Fluorescence In Situ Hybridization and Interpretation on Site, Lymphoma	253

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Lysergic acid diethylamide (LSD)		FTC	Forensic Toxicology, Criminalistics	107
		UDS, UDS6	Urine Drug Screen	100
Magnesium	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Magnesium, ionized	X	AQ, AQ2	Critical Care Blood Gas	94
		AQQ, AQ2Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
		POC10, POC11	POC Competency Blood Gases	53
Magnesium, urine	X	U	Urine Chemistry-General	70
Malaria		RMAL	Rapid Malaria	197
Manganese		R	Trace Metals	80
Manganese, urine		TMU	Trace Metals, Urine	106
Manganese, whole blood		TMWB	Trace Metals, Whole Blood	106
Mature B-cell leukemia/ lymphoma minimal residual disease		FL8	Flow Cytometry Mature B-Cell Leukemia/ Lymphoma Minimal Residual Disease	224
MCAD	X	IMD2	MCAD	260
MCH		FH1-FH4, FH9, FH10, FH13, FH16. FH1P-FH4P, FH9P, FH10P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
		HE, HEP	Basic Hematology	138
MCHC		FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
		HE, HEP	Basic Hematology	138

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
MCV		FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
		HE, HEP	Basic Hematology	138
MECP2 deletion/ duplication analysis	X	RETT	Rett Syndrome Genotyping	262
MECP2 genotyping	X	RETT	Rett Syndrome Genotyping	262
MEN2 (*RET* gene)	X	MGL3	Molecular Genetics	259–260
Meperidine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Mephedrone		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Meprobamate		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Meprobamate/ Carisoprodol		UDS, UDS6	Urine Drug Screen	100
Mercury, urine		TMU	Trace Metals, Urine	106
Mercury, whole blood		TMWB	Trace Metals, Whole Blood	106
Metabolic disease testing		BGL	Biochemical Genetics	255
Metanephrine	X	N/NX	Urine Chemistry, Special	71
Methadone		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
Methadone (cont.)		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Methadone metabolite (EDDP)		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Methamphetamine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Methanol	X	AL1	Whole Blood Alcohol/ Volatiles	104
	X	AL2	Serum Alcohol/Volatiles	104
Methaqualone		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
Methemoglobin	X	SO	Blood Oximetry	96
		SOQ	Quality Cross Check, Blood Oximetry	44
Methionine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Methicillin-resistant *Staphylococcus aureus* (MRSA)		BCS1	Blood Culture *Staphylococcus aureus*	183
		IDN, IDO	Nucleic Acid Amp, Organisms	205
		MRS	Methicillin-resistant *S. aureus* Screen	186
		MRS2M	MRSA Screen, Molecular, 2 Challenge	186
	X	**MRS5**	Methicillin-resistant *S. aureus* Screen	187
	X	**MRS5M**	MRSA Screen, Molecular, 5 Challenge	187

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Methotrexate	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Methylenedioxy-amphetamine (MDA)		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Methylenedioxyethyl-amphetamine (MDEA)		UDC	Forensic Urine Drug Testing, Confirmatory	102
Methylenedioxymeth-amphetamine (MDMA)		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Methylenedioxy-pyrovalerone (MDPV)		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Methylenetetra-hydrofolate reductase (*MTHFR* gene)	X	MGL1	Molecular Genetics	259–260
Methylmalonic acid		MMA	MMA and Active B12	84
Methylphenidate		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Metoprolol		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
MGMT		GLI	Glioma	275
Microalbumin, urine		LN20	Urine AlbuminCal Ver/ Lin	128
	X	U	Urine Chemistry-General	70
Microalbumin, urine (cont.)	X	UMC	Urine Albumin (Microalbumin)/ Creatinine	155
Microarray, constitutional disorders		CYCGH	Constitutional Microarray Analysis	254
Microarray, neoplastic disorders		CYCMA	Cytogenomic Microarray Analysis for Oncologic Abnormality	254
Microsatellite instability		MSI	Microsatellite Instability	272
Microtiter plate reader linearity		I	Instrumentation	134
Midazolam		DFC	Drug-Facilitated Crime	111
Minimal residual disease		BALL	B-ALL Minimal Residual Disease	224
		FL8	Flow Cytometry Mature B-Cell Leukemia/ Lymphoma Minimal Residual Disease	224
		FL9	Flow Cytometry Plasma Cell Myeloma Minimal Residual Disease	224
		MRD	Minimal Residual Disease, *BCR/ABL1* p210	277
		MRD1	Minimal Residual Disease, *BCR/ABL1* p190	277
		MRD2	Minimal Residual Disease, *PML/RARA*	277
Mirtazapine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Mite identification		TMO	Ticks, Mites, and Other Arthropods	197
Mitochondrial cytopathies	X	IMD3	Mitochondrial Cytopathies	260
Mitochondrial DNA deletion syndromes	X	IMD1	Mitochondrial DNA Deletion Syndromes	260
Mitragynine (Kratom)		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Mixing studies, aPTT		CGE/CGEX	Coagulation, Extended	163
		CGS1	Coag Special, Series 1	164
Mixing studies, PT		CGE/CGEX	Coagulation, Extended	163
		CGS1	Coag Special, Series 1	164
MLH1 promoter methylation analysis		MSI	Defective DNA Mismatch Repair/ Hereditary Nonpolyposis Colorectal Cancer (HNPCC)	272
Modified acid-fast stain	X	P, P3, P4, P5	Parasitology	196

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Mold identification	X	**F**	Mycology and Aerobic Actinomycetes	193
Molecular genetics	X	MGL1, MGL2, MGL3, MGL4, MGL5	Molecular Genetics	259–260
Molecular hematologic oncology	X	MHO, MHO1, MHO2, MHO3	Molecular Hematologic Oncology	273, 276
		MHO5	Molecular Hematologic Oncology	273, 276
Molecular HLA typing	X	DML	HLA Molecular Typing	246
Molecular typing		IDN, IDO	Nucleic Acid Amp, Organisms	205
Monitoring engraftment	X	ME	Monitoring Engraftment	248
Mononuclear cell count		CBT	Cord Blood Testing	237
		SCP	Stem Cell Processing	237
Moraxella catarrhalis	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
Morganella morganii		JIP	Joint Infection Panel	206
Morphine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
M-protein (paraprotein) identification	X	SPE	Protein Electrophoresis	78
MPL		MHO2, MHO3	Molecular Hematologic Oncology	276
MPV		FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
		HE, HEP	Basic Hematology	138
MRSA		BCS1	Blood Culture *Staphylococcus aureus*	183
		IDN, IDO	Nucleic Acid Amp, Organisms	205
		MRS	Methicillin-resistant *S. aureus* Screen	186
		MRS2M	MRSA Screen, Molecular, 2 Challenge	186
	X	**MRS5**	Methicillin-resistant *S. aureus* Screen	187
MRSA (cont.)	X	**MRS5M**	MRSA Screen, Molecular, 5 Challenge	187
Mucolipidosis IV (*MCOLN1* gene)	X	MGL4	Molecular Genetics	259–260
Mucopolysaccharide (Glycosaminoglycan)	X	BGL	Biochemical Genetics	255
Multiple endocrine neoplasia type 2 (*RET* gene)	X	MGL3	Molecular Genetics	259–260
Mumps-IgG		VR3M	Virology	211
Mycobacterial culture	X	**E1**	Mycobacteriology, Ltd	192
Mycobacterial identification	X	**E**	Mycobacteriology	192
Mycobacterium tuberculosis		IDO	Nucleic Acid Amp, Organisms	205
Mycobacterium tuberculosis antibody detection		QF	*M. tuberculosis* Infection Detection	219
Mycobacterium tuberculosis identification and resistance detection		MTBR	Molecular MTB Detection and Resistance	192
		MTR5	Molecular MTB Detection and Resistance, 5 challenge	192
Mycophenolic acid	X	MPA	Mycophenolic Acid	60
Mycoplasma genitalium		MGEN	*Mycoplasma genitalium*, Molecular	189
Mycoplasma pneumoniae		IDN, IDO	Nucleic Acid Amp, Organisms	205
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
		VR3	Antibody Detection—Infectious Disease Serology	211
Myoglobin	X	CRT, CRTI, HCRT, HCRTI	Cardiac Markers	62
		CRTQ	Quality Cross Check, Cardiac Markers	42
		LN33	Serum Myoglobin Cal Ver/Lin	130
	X	PCARM, PCARMX	Plasma Cardiac Markers	67
		POC12	Competency Plasma Cardiac Markers	53
Myoglobin, urine		MYG	Myoglobin, Urine	71
Myotonic dystrophy (*DMPK* gene)	X	MGL2	Molecular Genetics	259–260
N-acetylprocainamide (NAPA)	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
N-desmethyltramadol		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Naproxen		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Nasal smears, eosinophil		CMMP	Clinical Microscopy, Misc	149
Neisseria gonorrhoeae	X	**D3**	GC Cultures	177
	X	**HC6/HC6X**	*C. trachomatis*/GC by Nucleic Acid Amp	190
	X	**HC7**	*C. trachomatis*/GC DNA by NAA	190
		JIP	Joint Infection Panel	206
	X	**RMC**	Routine Microbiology Combination	178
Neisseria meningitidis		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
Neoplastic cellularity		NEO	Neoplastic Cellularity	273
Neuropathology		NP/NP1	Neuropathology Program	301
Neutral fats		FCFS	Fecal Fat	77
Next-generation sequencing		CNVST	Copy Number Variant–Solid Tumor	271
		NGS	NGS—Germline	265
		NGSB1	NGS Solid Tumor Bioinformatics	266
		NGSB3	NGS Hematologic Malignancies Bioinformatics	267
		NGSBV	NGS Bioinformatics Somatic Validated Materials	270
		NGSE	NGS Undiagnosed Disorders-Exome	268
		NGSET	NGS Undiagnosed Disorders-Trio Analysis	269
	X	NGSHM	NGS, Hematologic Malignancies	266
	X	NGSST	NGS, Solid Tumor	265
		TMB	Tumor Mutational Burden	271
Nicotine		NTA	Nicotine and Tobacco Alkaloids	105
Niemann-Pick type A/B (*SMPD1* gene)	X	MGL4	Molecular Genetics	259–260

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
NIPT		NIPT	Noninvasive Prenatal Testing	90
Nitrite, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		DAI	Urine Drug Adulterant/ Integrity Testing	101
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Nitrogen, urine; total		U	Urine Chemistry-General	70
Nongynecologic cytopathology		FNA/FNA1	Fine-Needle Aspiration, Digital	308
		FNAG/FNAG1	Fine-Needle Aspiration, Glass	309
		NGC/NGC1	Nongynecologic Cytopathology Education Program	307
Noninvasive prenatal testing		NIPT	Noninvasive Prenatal Testing	90
Norbuprenorphine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Norchlordiazepoxide		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Norclomipramine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Norcodeine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Norcyclobenzaprine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Nordiazepam		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Nordiazepam (cont.)		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Nordoxepin		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Norepinephrine	X	N/NX	Urine Chemistry, Special	71
Norfentanyl		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Norfluoxetine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Norhydrocodone		DMPM	Drug Monitoring for Pain Management	110
Norketamine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Normeperidine		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Normetanephrine	X	N/NX	Urine Chemistry Special	71
Normirtazapine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Nornaloxone		T	Toxicology	98
		UT	Urine Toxicology	98
Norovirus		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
		SP1	Stool Pathogens	188
Noroxycodone		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Noroxymorphone		DMPM	Drug Monitoring for Pain Management	110
Norpropoxyphene		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Norsertraline		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Nortrimipramine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Nortriptyline		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
	X	ZT	TDM, Special	60
Norvenlafaxine		DFC	Drug-Facilitated Crime	111
Norverapamil		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Novel opioids and benzodiazepines		NOB	Novel Opioids and Benzodiazepines	108
NRAS		MTP	Multigene Tumor Panel	275
nRBC		FH3, FH9, FH13, FH16, FH3P, FH9P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
N-telopeptide (NTX)		BMV6	Differential	88
	X	BU	Bone and Mineral, Urine	87

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
NT-pro B-type natriuretic peptides		BNP	B-Type Natriuretic Peptides, 2 Chall	61
	X	BNP5	B-Type Natriuretic Peptides, 5 Chall	61
		BNPQ	Quality Cross Check, B-Type Natriuretic Peptides	41
		LN30	BNP Cal Ver/Lin	129
	X	PCARM, PCARMX	Plasma Cardiac Markers	67
Nucleated cells, total		ABF3	Automated Body Fluid	150
		CBT	Cord Blood Testing	237
		SCP	Stem Cell Processing	237
Nucleated red blood cell count		FH3, FH9, FH13, FH16, FH3P, FH9P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
Nucleated red cells, total		CBT	Cord Blood Testing	237
Nucleic acid amplification	X	HBVL, HBVL5, HCV2	Hepatitis Viral Load	203
	X	**HC6/HC6X**	*C. trachomatis*/GC by Nucleic Acid Amp	190
	X	**HC7**	*C. trachomatis*/GC DNA by NAA	190
	X	HIVG, HV2	HIV Viral Load	203
		ID1, ID1T	Nucleic Acid Amp, Viruses	200
		ID2	Nucleic Acid Amp, Respiratory	202
	X	**ID3**	Nucleic Acid Amplification, Respiratory Limited	203
		IDN, IDO	Nucleic Acid Amp, Organisms	205
		MRS2M	MRSA Screen, Molecular, 2 Challenge	186
	X	**MRS5M**	MRSA Screen, Molecular, 5 Challenge	187
		SP, SPN, SP1	Stool Pathogens	188
		VLS, VLS2	Viral Load	204
		VRE	Vancomycin-Resistant *Enterococcus*	191
Nucleic acid testing	X	NAT	Nucleic Acid Testing	242
NUDT15		PGX3	Pharmacogenetics	262
Nugent scoring		VS2	Vaginitis Screen, Virtual Gram Stain	191
Occult blood		OCB	Occult Blood	153
		OCBQ	Quality Cross Check, Occult Blood	47
		POC9	POC Fecal Occult Blood	52
Occult blood, gastric		GOCB	Gastric Occult Blood	152
Ocular micrometer check		I	Instrumentation	134
O-desmethyltramadol		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Olanzapine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Oligoclonal bands		OLI	Oligoclonal Bands	76
Opiate group		DMPM	Drug Monitoring for Pain Management	110
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
		UTCO	Urine Toxicology Carryover	136
OPRM1		PGX1	Pharmacogenetics	262
Organic acids, urine, qualitative	X	BGL	Biochemical Genetics	255
Organic acids, urine, quantitative	X	BGL	Biochemical Genetics	255
Ornithine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Osmolality, measured	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Osmolality, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		LN6	Urine Chemistry Cal Ver/Lin	124
		POC3	POC Urine Dipstick Competency	52
	X	U	Urine Chemistry-General	70
Osmometer check		I	Instrumentation	134
Osteocalcin		BGS	Bone and Growth	87

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Oxalate		KSA	Kidney Stone Risk Assessment	71
Oxazepam		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Oxcarbazepine		ZE	Therapeutic Drug Monitoring, Extended	60
Oxcarbazepine metabolite		ZE	Therapeutic Drug Monitoring, Extended	60
Oxidants, urine		DAI	Urine Drug Adulterant/ Integrity Testing	101
Oxycodone		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Oxyhemoglobin	X	SO	Blood Oximetry	96
		SOQ	Quality Cross Check, Blood Oximetry	44
Oxymorphone		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
p16		P16	P16 Immunohistochemistry TMA	299
p53		P53	p53 Immunohistochemistry TMA	295
p2PSA		K, KK	Ligand-General	84
Pancreatic amylase	X	**C1, C3, C3X, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
PAPP-A		FP1B	First Trimester Maternal Screening, Free Beta	89
		FP1T	First Trimester Maternal Screening, Total hCG	89
Parainfluenza virus		ID2	Nucleic Acid Amp, Respiratory	202
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen Detection by DFA	199
Paraprotein identification	X	SPE	Protein Electrophoresis	78
Parasite identification	X	**BP**	Blood Parasite	197
	X	**P, P3, P4, P5**	Parasitology	196
		PEX	Expanded Parasitology	197
Parathyroid hormone (PTH)	X	ING	Insulin, Gastrin, C-Peptide, PTH	88
		PTHQ	Quality Cross Check, PTH	43
Parentage/relationship testing	X	PARF	Parentage/Relationship	243
Paroxetine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Parvimonas micra		JIP	Joint Infection Panel	206
Parvovirus B19		ID1	Nucleic Acid Amp, Viruses	200
pCO_2	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
		LN13, LN13C	Blood Gas Cal Ver/Lin	126
		POC10, POC11	POC Competency Blood Gases	53
PDGFRA		KIT	*KIT/PDGFRA*	274
		MTP	Multigene Tumor Panel	275
PD-L1		PDL1	PD-L1 Immunohistochemistry	298
Pentobarbital		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Pentobarbital (cont.)		T	Toxicology	98
		UT	Urine Toxicology	98
Peptoniphilus		JIP	Joint Infection Panel	206
Peptostreptococcus anaerobius		JIP	Joint Infection Panel	206
Performance improvement program in surgical pathology		PIP/PIP1, PIPW/PIPW1	Performance Improvement Program in Surgical Pathology	280–281
Peripheral blood cell identification		EHE1	Expanded Virtual Peripheral Blood Smear	146
Peripheral blood smear, virtual		VPBS	Virtual Peripheral Blood Smear	145
pH		AFL	Amniotic Fluid Leakage	150
	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		GOCB	Gastric Occult Blood	152
		LN13, LN13C	Blood Gas Cal Ver/Lin	126
		POC10, POC11	POC Competency Blood Gases	53
pH, gastric		GOCB	Gastric Occult Blood	152
pH interpretation		AFL	Amniotic Fluid Leakage	150
pH meters		I	Instrumentation	134
pH, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		DAI	Urine Drug Adulterant/ Integrity Testing	101
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
		UDC	Forensic Urine Drug Testing, Confirmatory	102
Phencyclidine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Phenethylamine		FTC	Forensic Toxicology, Criminalistics	107
Pheniramine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
Pheniramine (cont.)		UT	Urine Toxicology	98
Phenobarbital	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		LN3	TDM Cal Ver/Lin	123
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Phentermine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Phenylalanine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Phenylephrine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Phenytoin	X	**CZ, CZ2X, CZX, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		LN3	TDM Cal Ver/Lin	123
		SCO	Serum Carryover	136
		T	Toxicology	98
		UT	Urine Toxicology	98
Phenytoin, free	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Phosphorus	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Phosphorus, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
PIK3CA		MTP	Multigene Tumor Panel	275
Pinworm prep	X	CMMP	Clinical Microscopy, Misc	149
Pipette calibration-gravimetric		I	Instrumentation	134
Plasma cell myeloma, minimal residual disease		FL9	Flow Cytometry Plasma Cell Myeloma Minimal Residual Disease	224
Plasma cell neoplasms		PCNEO	Flow Cytometry, Plasma Cell Neoplasms	225
Plasma hemoglobin		PHG	Plasma Hemoglobin	78
Plasminogen activator inhibitor		CGE/CGEX	Coagulation, Extended	163
Plasminogen activator inhibitor (PAI)-1 (*SERPINE1* gene)		MGL1	Molecular Genetics	259–260
Plasminogen antigen		CGE/CGEX	Coagulation, Extended	163
Platelet aggregation		PF	Platelet Function	168
Platelet antibody detection	X	PS	Platelet Serology	235
Platelet calculator		TRC	Transfusion-Related Cell Count	234
Platelet count	X	**FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P**	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
	X	**HE, HEP**	Basic Hematology	138
		LN9	Hematology Cal Ver/Lin	125
Platelet count (estimated)		EHE1	Expanded Virtual Peripheral Blood Smear	146
		VPBS	Virtual Peripheral Blood Smear	145
Platelet count (platelet-rich plasma)	X	TRC	Transfusion-Related Cell Count	234
Platelet crossmatch		PS	Platelet Serology	235
Platelet function		PF1	Platelet Function	168
Platelet mapping		PLTM	Platelet Mapping	171
Plesiomonas shigelloides		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
PML/RARA	X	MHO2, MHO3	Molecular Hematologic Oncology	276
		MRD2	Minimal Residual Disease	277

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Pneumocystis detection		PCP1	*Pneumocystis jirovecii*, Calcofluor White Stain	195
		PCP2	*Pneumocystis jirovecii*, DFA Stain	195
		PCP4	*Pneumocystis jirovecii*, GMS Stain	195
PNH immunophenotype		PNH	Paroxysmal Nocturnal Hemoglobinuria, RBC	225
pO_2	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
		LN13, LN13C	Blood Gas Cal Ver/Lin	126
		POC10, POC11	POC Competency Blood Gases	53
Porphobilinogen, urine		UPBG	Porphobilinogen, Urine	72
Posaconazole		AFD	Antifungal Drugs Monitoring	109
Post-immunotherapy analysis, flow cytometry		FL6	Post-Immunotherapy Flow Analysis	223
Postanalytical DNA sequencing		SEC	DNA Sequencing Count	261
Postvasectomy sperm count, automated		PV1	Postvasectomy Sperm Count	158
Postvasectomy sperm count, manual	X	PV	Postvasectomy Sperm Count	158
Postvasectomy sperm presence/absence, manual	X	PV	Postvasectomy Sperm Count	158
Potassium	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**C1, C3, C3X, C4, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN13C	Blood Gas Cal Ver/Lin	126
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		POC10, POC11	POC Competency Blood Gases	53
Potassium, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Potassium, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Prader-Willi/Angelman syndrome	X	MGL1	Molecular Genetics	259–260
Prealbumin (transthyretin)	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	S2, S4	Immunology, Special	215
Predictive markers by immunohistochemistry		GHER2	Gastric HER2	296
	X	HER2	HER2 by Immunohistochemistry	296
		PM1	CD117 by Immunohistochemistry	294
	X	PM2	ER, PgR by Immunohistochemistry	296
		PM3	CD20 by Immunohistochemistry	297
		PM5	Immunohistochemistry TMA	294
		PM6	Anaplastic Lymphoma Kinase IHC	297
Pregabalin		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
		ZE	Therapeutic Drug Monitoring, Extended	60
Prekallikrein		CGE/CGEX	Coagulation, Extended	163
Primidone	X	**CZ, CZX, CZ2X, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Pro B-type natriuretic peptides		BNP	B-Type Natriuretic Peptides, 2 Chall	61
	X	BNP5	B-Type Natriuretic Peptides, 5 Chall	61
		BNPQ	Quality Cross Check, B-Type Natriuretic Peptides	41
	X	PCARM/ PCARMX	Plasma Cardiac Markers	67
Procainamide	X	**CZ, CZX, CZ2X, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Procalcitonin		LN41	Procalcitonin Cal Ver/ Lin	132
	X	PCT	Procalcitonin	79
Progesterone		LN8	Reproductive Endocrinology Cal Ver/ Lin	125
	X	Y/YY	Sex Hormones	86
Progesterone receptors by immunohistochemistry		PM2	ER, PgR by Immunohistochemistry	296
Prolactin		LN8	Reproductive Endocrinology Cal Ver/ Lin	125
	X	Y/YY	Sex Hormones	86
Proline, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Promethazine		DFC	Drug-Facilitated Crime	111
Propoxyphene		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Propranolol		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Prostate-specific antigen (PSA)		ABS	Accuracy-Based Testosterone, Estradiol	115
	X	K, KK	Ligand-General	84
		LN23	PSA Cal Ver/Lin	128
Prostate-specific antigen, complexed (cPSA)	X	K/KK	Ligand-General	84
Prostate-specific antigen (PSA), free, measured	X	K/KK	Ligand-General	84
Prostatic acid phosphatase (PAP)	X	K/KK	Ligand-General	84
Protein C		CGE/CGEX	Coagulation, Extended	163
		CGS2	Coag Special, Series 2	164
		LN35	Thrombophilia Cal Ver/ Lin	131
Protein, confirmatory urine		DSC	Dipstick Confirmatory	151
Protein electrophoresis, serum, interpretation		SPE	Protein Electrophoresis	78
Protein S		CGE/CGEX	Coagulation, Extended	163
		CGS2	Coag Special, Series 2	164
Protein, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Protein, total	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		SPE	Lipoprotein and Protein Electrophoresis	78
Protein, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		DSC	Dipstick Confirmatory	151
	X	HCC2	Waived Combination	68
		LN6	Urine Chemistry Cal Ver/Lin	124
		POC3	POC Urine Dipstick Competency	52
	X	U	Urine Chemistry-General	70
***Proteus* spp.**	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Prothrombin mutation (*F2* gene)	X	MGL1	Molecular Genetics	259–260
	X	TPM	Thrombophilia Mutations	263
Prothrombin time	X	**CGB**	Basic Coagulation	162
	X	**CGL**	Coagulation, Limited	162
		CGLQ	Quality Cross Check, Coagulation, Limited	48
		CGS1	Coag Special, Series 1	164
		CGS4	Coag Special, Series 4	164
		DBGN	Anticoagulant Monitoring, Dabigatran	165
		FNPX	Anticoagulant Monitoring, Fondaparinux	165
		POC6	POC PT/INR, CoaguChek XS Plus	52
		RVBN	Anticoagulant Monitoring Rivaroxaban	165
	X	**WP3, WP4, WP6, WP9**	Whole Blood Coagulation	170
Prothrombin time, dilute		CGE/CGEX	Coagulation, Extended	163
Provider-performed microscopy		CMMP	Clinical Microscopy, Misc	149
PRU test		PIA, PIAX	Drug-Specific Platelet Aggregation	169
Pseudocholinesterase	X	C7	Pseudocholinesterase	79
Pseudoephedrine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Pseudomonas aeruginosa	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Quality Management Tools		QP211	Antimicrobial Susceptibility Testing: Monitoring and Trend Analysis	27
		QP222	Laboratory Staffing Ratios	28
		QPD10, QPD25	Technical Competency Assessment of Gram Stains	30
		QPC10, QPC25	Technical Competency Assessment of Peripheral Blood Smears	29
		QT1	Patient Identification Accuracy	32
		QT10	Critical Values Reporting	35
		QT15	TATs of Troponin	36
		QT16	Corrected Results	37
		QT17	Outpatient Order Entry Errors	37
		QT2	Blood Culture Contamination	32
		QT3	Laboratory Specimen Acceptability	33
		QT4	In-Date Blood Product Wastage	33
		QT5	Gynecologic Cytology Outcomes: Biopsy Correlation Performance	38
		QT7	Satisfaction with Outpatient Specimen Collection	34
		QT8	Stat Test TAT Outliers	34
Quetiapine		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Quinidine	X	**CZ, CZX, CZ2X, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Quinine		FTC	Forensic Toxicology, Criminalistics	107
Ranitidine		FTC	Forensic Toxicology, Criminalistics	107
Rapamycin (sirolimus)	X	CS	Immunosuppressive Drugs	59
Rapid group A strep	X	**D**	Bacteriology	175
	X	**D6**	Rapid Group A Strep	181
	X	D9	Rapid Group A Strep, Waived	181
	X	**MC4**	Urine Colony Count Combination	179
	X	**RMC**	Routine Microbiology Combination	178
RBC automated count, fluid		ABF1, ABF2, ABF3	Automated Body Fluid	150
RBC count		ABF1, ABF2, ABF3	Automated Body Fluid	150
	X	**FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P**	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
	X	**HE, HEP**	Basic Hematology	138
		LN9	Hematology Cal Ver/Lin	125
RBC count, automated, urine (quantitative)		UAA, UAA1	Automated Urinalysis	151
RBC folate	X	FOL	RBC Folate	90
RBC manual count, fluid	X	HFC, HFCI	Hemocytometer Fluid Count	152–153
RBC morphology		EHE1	Expanded Virtual Peripheral Blood Smear	146
		VPBS	Virtual Peripheral Blood Smear	145
RDW		FH1-FH4, FH9, FH10, FH13, FH16, FH1P-FH4P, FH9P, FH10P, FH13P, FH16P	Hematology Automated Differential	138
		FH3Q, FH4Q, FH9Q, FH13Q	Quality Cross Check, Automated Hematology Series	45
		HE, HEP	Basic Hematology	138

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Red blood cell antigen detection		J, J1	Transfusion Medicine	228
Red blood cell antigen genotyping		RAG	Red Blood Cell Antigen Genotyping	232
Red blood cell antigen typing		RBCAT	Red Blood Cell Antigen Typing	232
Reducing substance, urine		CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Refractometer check		I	Instrumentation	134
Renin	X	RAP	Renin and Aldosterone	91
Reptilase time		CGE/CGEX	Coagulation, Extended	163
Respiratory syncytial virus (RSV)		ID2	Nucleic Acid Amp, Respiratory	202
	X	**ID3**	Nucleic Acid Amplification, Respiratory Limited	203
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen Detection by DFA	199
	X	**VR4**	Virology Antigen Detection by EIA and Latex	199
Reticulocyte count, absolute	X	RT, RT2, RT3, RT4	Reticulocyte	143
		RTQ, RT3Q, RT4Q	Quality Cross Check, Reticulocyte	46
Reticulocyte count, percent		LN18, LN19	Reticulocyte Cal Ver/Lin	127
	X	RT, RT2, RT3, RT4	Reticulocyte	143
		RTQ, RT3Q, RT4Q	Quality Cross Check, Reticulocyte	46
Reticulocyte hemoglobin (RET-He)		RT4	Reticulocyte	143
Reticulocyte hemoglobin concentration (CHr)		RT3	Reticulocyte	143
Rett syndrome (*MECP2* gene)	X	RETT	Rett Syndrome Genotyping	262
Rett syndrome (*MECP2* gene) duplication deletion analysis	X	RETT	Rett Syndrome Genotyping	262
RhD	X	MGL2	Molecular Genetics	259–260

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
RhD typing	X	**J, J1**	Transfusion Medicine	228
	X	**JAT**	Transfusion Medicine, Automated	229
		JATE1	Transfusion Medicine, Automated, Educational	229
		JATQ	Quality Cross Check, Transfusion Medicine	50
		TMCA	Transfusion Medicine, Competency Assessment	235
Rheumatoid factor isotypes, IgA, IgG, and IgM		CCP	Cyclic Citrullinated Peptide Antibody	218
Rheumatoid factor, qualitative	X	**IL, RF/RFX**	Immunology	214
Rheumatoid factor, quantitative	X	IL, RF/RFX	Immunology	214
Rhinovirus		ID2	Nucleic Acid Amp, Respiratory	202
	X	**IDR**	Infectious Disease, Respiratory Panel	208
Rhinovrus/enterovirus	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
RNA sequencing		RNA	Fusion RNA Sequencing	274
Rotavirus		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
		SP, SPN	Stool Pathogens	188
	X	**VR4**	Viral Antigen Detection by EIA and Latex	199
RSV		ID2	Nucleic Acid Amp, Respiratory	202
	X	**ID3**	Nucleic Acid Amplification, Respiratory Limited	203
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
	X	**IDR**	Infectious Disease, Respiratory Panel	208
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen Detection by DFA	199
	X	**VR4**	Viral Antigen Detection by EIA and Latex	199
Rubella antibody, IgG, qualitative	X	**IL, RUB/ RUBX**	Immunology	214
Rubella antibody, IgG, quantitative	X	IL, RUB/ RUBX	Immunology	214
Rubeola antibody (English measles)	X	VR3	Antibody Detection—Infectious Disease Serology	211
Rufinamide		ZE	Therapeutic Drug Monitoring, Extended	60
Rupture of fetal membranes		ROM1	Fetal Membranes/ Preterm Labor	154

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Russell's viper venom time, dilute		CGS1	Coagulation Special, Series 1	164
Salicylate	X	CZ, CZX, CZ2X, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FTC	Forensic Toxicology, Criminalistics	107
		LN3	TDM Cal Ver/Lin	123
	X	SDS	Serum Drug Screen	104
		T	Toxicology	98
		UT	Urine Toxicology	98
Salmonella		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
		JIP	Joint Infection Panel	206
Sapovirus (I, II, IV, V)		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
Sarcoma by FISH		CYK	Fluorescence In Situ Hybridization	253
Sarcoma translocation	X	SARC	Sarcoma Fusion Gene	273
SARS-CoV-2		COV2	SARS-CoV-2 Molecular	201
		COV2Q	Quality Cross Check, SARS-CoV-2 Molecular	49
		COVAG	SARS-CoV-2 Antigen	201
		COVAQ	Quality Cross Check, SARS-CoV-2 Antigen	49
		COVS	SARS-CoV-2 Serology	220
		COVSQ	Quality Cross Check, SARS-CoV-2 Serology	49
		ID3	Nucleic Acid Amplification, Respiratory Limited	203
		IDR	Infectious Disease, Respiratory Panel	208
Scl-70 (anti-DNA topoisomerase)		RDS	Rheumatic Disease Special	219
Scopolamine		DFC	Drug-Facilitated Crime	111
Secobarbital		DFC	Drug-Facilitated Crime	111
		UDC	Forensic Urine Drug Testing, Confirmatory	102
Selenium	X	R	Trace Metals	80
Selenium, urine		TMU	Trace Metals, Urine	106
Selenium, whole blood		TMWB	Trace Metals, Whole Blood	106
Semen analysis		ASA, SM, PV1	Semen Analysis	158
	X	SC, SC1, SV, PV	Semen Analysis	158
	X	SMCD	Semen Analysis, Online	158
		SM1CD, SM2CD	Semen Analysis, Online	158

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Serine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
SERPINA1 genotyping	X	AAT	Alpha-1 Antitrypsin Genotyping	257
Serratia marcescens	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Sertraline		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Serum free light chains		SFLC	Serum Free Light Chains	221
Sex hormone-binding globulin (SHBG)		ABS	Testosterone and Estradiol Accuracy	115
	X	DY	Sex Hormones	86
Shiga toxin		SP	Stool Pathogens–Rapid and Molecular	188
		ST	Shiga Toxin	188
Shiga-like toxin producing *E. coli* (STEC)		GIP	Gastrointestinal Panel	210
		GIP5	Gastrointestinal Panel	210
Shigella		GIP	Gastrointestinal Panel	210
	X	**GIP5**	Gastrointestinal Panel	210
Sickle cell screen, qualitative	X	HG	Hemoglobinopathy	142
	X	SCS	Sickle Cell Screen	144
Sirolimus (Rapamycin)	X	CS	Immunosuppressive Drugs	59
SLCO1B1		PGX	Pharmacogenetics	262
Sodium	X	**AQ, AQ2, AQ3, AQ4**	Critical Care Blood Gas	94
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**C1, C3, C3X, C4, CZ, CZ2X, CZX**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN13C	Blood Gas Cal Ver/Lin	126
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		POC10, POC11	POC Competency Blood Gases	53
Sodium, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Sodium, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Soluble transferrin receptor		STFR	Soluble Transferrin Receptor	82
Somatomedin C (IGF-1)	X	Y, YY	Sex Hormones	86
Specific gravity	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
		DAI	Urine Drug Adulterant/ Integrity Testing	101
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
		UDC	Forensic Urine Drug Testing, Confirmatory	102
Spectrophotometer linearity		I	Instrumentation	134
Sperm count	X	SMCD	Semen Analysis, Online	158
Sperm count, automated		PV1	Semen Analysis	158
	X	SC1	Semen Analysis	158
Sperm count, manual	X	PV	Postvasectomy Sperm Count	158
	X	SC	Semen Analysis	158
Sperm morphology		SM	Semen Analysis	158
		SM1CD	Semen Analysis, Online	158
Sperm motility		SMCD	Semen Analysis, Online	158
Sperm presence/ absence		SC	Semen Analysis	158
Sperm presence/ absence, postvasectomy, manual	X	PV	Semen Analysis	158
Sperm viability		SM2CD	Semen Analysis, Online	158
	X	SV	Semen Analysis	158
Spinal fluid meningitis panel	X	**D**	Bacteriology	175
Spinal muscular atrophy (*SMN1* and *SMN2* genes)	X	MGL2	Molecular Genetics	259–260
Spinocerebellar ataxia (*ATXN1*, *ATXN2*, *ATXN3*, *CACNA1A*, and *ATXN7* genes)	X	MGL2	Molecular Genetics	259–260
Split fats		FCFS	Fecal Fat	77
Staphylococcus aureus	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Staphylococcus aureus-blood culture		BCS1	Blood Culture *Staphylococcus aureus*	183
Staphylococcus lugdunensis		JIP	Joint Infection Panel	206

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
STEC (Shiga-like toxin producing *E. coli*)		GIP	Gastrointestinal Panel	210
		GIP5	Gastrointestinal Panel	210
Strep screen		POC4	POC/Waived Strep Screen Competency	52
Streptococcus agalactiae	X	**D8**	Group B Strep	182
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
Streptococcus pneumoniae		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
		SBAS	*S. pneumoniae* Ag Detection	182
Streptococcus pyogenes	X	**D**	Bacteriology	175
	X	**D1**	Throat	177
	X	**D6**	Rapid Group A Strep	181
	X	D9	Rapid Group A Strep, Waived	181
	X	**IDPN**	Infectious Disease, Pneumonia Panel	209
		JIP	Joint Infection Panel	206
	X	**MC4**	Urine Colony Count Combination	179
	X	**RMC**	Routine Microbiology Combination	178
Strychnine		FTC	Forensic Toxicology, Criminalistics	107
Sulfosalicylic acid (SSA)		DSC	Dipstick Confirmatory	151
Surgical pathology		DPATH/ DPATH1	Online Digital Slide Program	283
		PIP/PIP1, PIPW/PIPW1	Performance Improvement Program in Surgical Pathology	280–281
		VBP/VBP1	Online Virtual Biopsies Program	282
Synthetic cannabinoid/ designer drugs		SCDD	Synthetic Cannabinoid/ Designer Drugs	108
Syphilis	X	**G**	Syphilis Serology	220
T3, free (triiodothyronine)		ABTH	Harmonized Thyroid	116
	X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
T3, free (triiodothyronine) (cont.)		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	K/KK	Ligand-General	84
T3, total (triiodothyronine)		ABTH	Harmonized Thyroid	116
	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
T3, uptake and related tests	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
T4, free (thyroxine)		ABTH	Harmonized Thyroid	116
	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
T4, total (thyroxine)		ABTH	Harmonized Thyroid	116
	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
T-cell subsets analysis		FL7	Flow Cytometry, T-Cell Subsets Analysis	223
Tacrolimus	X	CS	Immunosuppressive Drugs	59
		LN31	Immunosuppressive Drugs Cal Ver/Lin	130
Tapentadol		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
Tapentadol-O-sulfate		DMPM	Drug Monitoring for Pain Management	110
Taurine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Tay-Sachs (*HEXA* gene)	X	MGL4	Molecular Genetics	259–260

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Temazepam		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		OFD	Oral Fluid for Drugs of Abuse	103
		T	Toxicology	98
		UDC	Forensic Urine Drug Testing, Confirmatory	102
		UT	Urine Toxicology	98
Teriflunomide		ZE	Therapeutic Drug Monitoring, Extended	60
TERT		GLI	Glioma	275
Testosterone		ABS	Accuracy-Based Testosterone and Estradiol	115
		LN8	Reproductive Endocrinology Cal Ver/Lin	125
	X	Y/YY	Sex Hormones	86
Testosterone, bioavailable, measured		DY	Sex Hormones	86
Testosterone, free, measured		DY	Sex Hormones	86
Tetrahydrozoline		DFC	Drug-Facilitated Crime	111
Thallium, urine		TMU	Trace Metals, Urine	106
Thallium, whole blood		TMWB	Trace Metals, Whole Blood	106
Theophylline	X	**CZ, CZX, CZ2X, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Threonine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Throat culture	X	**D1**	Throat	177
	X	**MC4**	Urine Colony Count Combination	179
	X	**RMC**	Routine Microbiology Combination	178
Thrombin time		CGE/CGEX	Coagulation, Extended	163
		CGS4	Coag Special, Series 4	164
		DBGN	Dabigatran	165
Thrombophilia mutations	X	TPM	Thrombophilia Mutations	263
Thyroglobulin	X	TM/TMX	Tumor Markers	91
Thyroid-stimulating hormone (TSH)		ABS	Accuracy-Based Testosterone and Estradiol	115
		ABTH	Harmonized Thyroid	116
Thyroid-stimulating hormone (TSH) (cont.)	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Thyroxine (T4), free		ABTH	Harmonized Thyroid	116
	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
Thyroxine (T4), total		ABTH	Harmonized Thyroid	116
	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Tick identification		TMO	Ticks, Mites, and Other Arthropods	197
Tissue parasite identification	X	**BP**	Blood Parasite	197
	X	**P**	Parasitology	196
		PEX	Expanded Parasitology	197
Tobramycin	X	**CZ, CZX, CZ2X, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Topiramate		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
Total bile acids		TBLA	Total Bile Acid	80
Total bilirubin	X	**C1, C3, C3X, CZ, CZX, C4, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Total bilirubin (cont.)		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
	X	**NB**, NB2	Neonatal Bilirubin	67
Total bilirubin, urine	X	CMP, CMP1	Clinical Microscopy	148
		DSC	Dipstick Confirmatory	151
	X	HCC2	Waived Combination	68
Total free fatty acids		FCFS	Fecal Fat	77
Total hCG	X	**FP1T**	First Trimester Maternal Screening, Total hCG	89
Total hemolytic complement		CH50	Total Hemolytic Complement	220
Total iron binding capacity, measured	X	C3, C3X, CZ CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Total nitrogen, urine		U	Urine Chemistry-General	70
Total nucleated cells		CBT	Cord Blood Testing	237
		SCP	Stem Cell Processing	237
Total nucleated cells manual differential count (body fluid)		HFC/HFCI	Hemocytometer Fluid Count	152–153
		VBF	Virtual Body Fluid	150
Total nucleated cells (WBC) automated count (body fluid)		ABF1, ABF2, ABF3	Automated Body Fluid	150
Total protein	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
		SPE	Protein Electrophoresis	78
Total protein, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	76
Total protein, urine	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Total tricyclics	X	SDS	Serum Drug Screen	104
	X	ZT	TDM, Special	60
Touch imprint/crush prep		TICP, TICP1	Touch Imprint/Crush Prep	306
Toxicology, serum, qualitative	X	SDS	Serum Drug Screen	104
	X	T	Toxicology	98
Toxicology, urine, qualitative	X	DMPM	Drug Monitoring for Pain Management	110
	X	T	Toxicology	98
	X	UDS, UDS6	Urine Drug Screen	100
	X	UT	Urine Toxicology	98
Toxicology, urine, qualitative/quantitative	X	DMPM	Drug Monitoring for Pain Management	110
	X	UDC	Forensic Urine Drug Testing, Confirmatory	102
Toxoplasma gondii	X	VR3	Antibody Detection—Infectious Disease Serology	211
TPMT		PGX3	Pharmacogenetics	262
Tramadol		DFC	Drug-Facilitated Crime	111
		DMPM	Drug Monitoring for Pain Management	110
		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Transferrin	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN7	Immunology Cal Ver/Lin	124
	X	S2, S4	Immunology, Special	215
Transfusion medicine		ETME1	Expanded Transfusion Medicine Exercises	239
		EXM, EXM2	Electronic Crossmatch	229, 231
	X	**J, J1**	Transfusion Medicine	228
	X	**JAT**	Transfusion Medicine, Automated	229
		JATE1	Transfusion Medicine, Automated, Educational	229
		JE1	Transfusion Medicine, Educational	228
		TMCA	Transfusion Medicine, Competency Assessment	235
		TMCAD	Transfusion Medicine, Competency Assessment	235
		TMCAE	Transfusion Medicine, Competency Assessment	235

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Transfusion medicine (cont.)		TMCAF	Transfusion Medicine, Competency Assessment	236
	X	TRC	Transfusion-Related Cell Count	234
Trazodone metabolite (m-CPP)		DFC	Drug-Facilitated Crime	111
Trazodone		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Treponema pallidum	X	**G**	Syphilis Serology	220
Trichomonas vaginalis		MVP	Molecular Vaginal Panel	190
		TVAG	*Trichomonas vaginalis*, Molecular	191
	X	VS, VS1	Vaginitis Screen	189
Tricyclic group		T	Toxicology	98
		UDS, UDS6	Urine Drug Screen	100
		UT	Urine Toxicology	98
Tricyclics, total	X	SDS	Serum Drug Screen	104
	X	ZT	TDM, Special	60
Triglycerides		ABL	Accuracy-Based Lipid	114
	X	**C1, C3, C3X, C4, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FCFS	Fecal Fat	77
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
	X	LCW	Chemistry-Ltd, Waived	66
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Triiodothyronine (T3), total		ABTH	Harmonized Thyroid	116
	X	**C1, C3, C3X, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	**K/KK**	Ligand-General	84
		LN5	Ligand Assay Cal Ver/Lin	123
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Triiodothyronine (T3), free		ABTH	Harmonized Thyroid	116
	X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Triiodothyronine (T3), free (cont.)		CZQ	Quality Cross Check, Chemistry and TDM	41
	X	K/KK	Ligand-General	84
Trimipramine		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Troponin I, plasma	X	PCARI, PCARM, PCARMX	Plasma Cardiac Markers	67
		POC12	Competency Plasma Cardiac Markers	53
Troponin I, serum	X	CRT, CRTI	Cardiac Markers	62
		CRTQ	Quality Cross Check, Cardiac Markers	42
		LN25	Troponin I Cal Ver/Lin	129
Troponin I, high sensitivity, serum	X	HCRT, HCRTI	Cardiac Markers	62
Troponin T, serum	X	CRT, CRTI	Cardiac Markers	62
		LN27	Troponin T Cal Ver/Lin	129
Troponin T, high sensitivity, serum	X	HCRT, HCRTI	Cardiac Markers	62
		LN47	High-Sensitivity Troponin T Cal Ver/Lin	133
Tryptophan, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Tumor mutational burden		TMB	Tumor Mutational Burden	271
Tumor necrosis factor (TNF)-alpha		CTKN	Cytokines	218
Tyrosine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
UGT1A1		PGX3	Pharmacogenetics	262
Unsaturated iron binding capacity, measured	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
Urea nitrogen	X	**AQ2, AQ4**	Critical Care Blood Gas	94
		AQ2Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	44
	X	**C1, C3, C3X, C4, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD	Body Fluid	74
		FLDQ	Quality Cross Check, Body Fluid Chemistry	42
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Urea nitrogen (cont.)		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Urea nitrogen, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Urea nitrogen, vitreous fluid		VF	Vitreous Fluid, Post-mortem	104
Urease	X	RUR	Rapid Urease	188
Uric acid	X	**C1, C3, C3X, C4, CZ, CZX, CZ2X**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		FLD2	Body Fluid Chemistry 2	75
		IFS	Interfering Substances	135
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	122
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	122
Uric acid, urine		LN6	Urine Chemistry Cal Ver/Lin	124
	X	U	Urine Chemistry-General	70
Urine albumin		LN20	Urine albumin Cal Ver/Lin	128
	X	U	Urine Chemistry-General	70
	X	UMC	Urine Albumin Creatinine	155
Urine albumin: creatinine ratio		ABU	Accuracy-Based Urine	115
		U	Urine Chemistry-General	70
		UMC	Urine Albumin Creatinine	155
Urine colony count		MC3	Urine Colony Count	179
		MC4	Urine Colony Count Combination	179
Urine crystals identification		URC	Crystals	151
Urine crystals, semiquantitative		UAA	Automated Urinalysis	151
Urine culture	X	**D2**	Urine Culture	177
		MC3	Urine Colony Count	179
	X	**MC4**	Urine Colony Count Combination	179
	X	**RMC**	Routine Microbiology Combination	178
Urine dipstick	X	CMP, CMP1	Clinical MIcroscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Urine dipstick (cont.)		POC3	POC/Waived Urine Dipstick Competency	52
Urine drug screen	X	DMPM	Drug Monitoring for Pain Management	110
	X	UDS, UDS6	Urine Drug Screen	100
Urine eosinophils, wright stain		SCM2	Special Clinical Microscopy	154
Urine hCG, qualitative	X	UHCG	Urine hCG	154
Urine hemosiderin, prussian blue stain		SCM1	Special Clinical Microscopy	154
Urine sediment, color photographs	X	CMP, CMP1, CMMP	Clinical Microscopy	148–149
Urobilinogen	X	CMP, CMP1	Clinical Microscopy	148
		CMQ	Quality Cross Check, Urinalysis	46
	X	HCC2	Waived Combination	68
		POC3	POC Urine Dipstick Competency	52
Uroporphyrin	X	N/NX	Urine Chemistry-Special	71
Urothelial carcinoma by FISH, hybridization and interpretation on site	X	CYI	Fluorescence In Situ Hybridization and Interpretation on Site, Urothelial Carcinoma	252
Vaginal wet preparations (clue cell, epithelial cell, trichomonas, or yeast)	X	CMMP	Clinical Microscopy, Misc	149
Vaginitis screen		BV	Bacterial Vaginosis	189
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	X	VS1	Genzyme OSOM *Trichomonas*	189
		VS2	Vaginitis Screen, Virtual Gram Stain	191
Valine, quantitative		BGL2	Amino Acid Quantitation for Inherited Metabolic Disorders	256
Valproic acid	X	**CZ, CZX, CZ2X, Z**	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		DFC	Drug-Facilitated Crime	111
		FTC	Forensic Toxicology, Criminalistics	107
		LN3	TDM Cal Ver/Lin	123
		T	Toxicology	98
		UT	Urine Toxicology	98
Valproic acid, free	X	CZ, CZX, CZ2X, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Vancomycin	X	CZ, CZX, CZ2X, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	41
		LN3	TDM Cal Ver/Lin	123
Vancomycin-resistant *Enterococcus*		IDN, IDO	Nucleic Acid Amp, Organisms	205
		VRE	Vancomycin-resistant *Enterococcus*	191
Vanillylmandelic acid	X	N/NX	Urine Chemistry-Special	71
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Varicella-zoster virus (VZV)		ID1	Nucleic Acid Amplification	200
	X	**ID5**	Varicella-Zoster Virus, Molecular	203
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**VR1**	Virology Culture	199
	X	**VR2**	Viral Antigen Detection by DFA	199
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		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
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		T	Toxicology	98
		UT	Urine Toxicology	98
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	X	**GIP5**	Gastrointestinal Panel	210
Viral antigen detection		POC8	POC Influenza A/B Ag	52
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	X	**ID3**	Nucleic Acid Amplification, Respiratory Limited	203
	X	**ID5**	HSV, VZV—Molecular	203

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Viral isolation/ identification (cont.)		IDME	Meningitis/Encephalitis Panel	207
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	X	**VR1**	Virology Culture	199
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		LN5S	Ligand Assay, Siemens Cal Ver/Lin	123
Vitamin B_{12}, active		MMA	MMA and Active B12	84
Vitamin D, 1, 25 dihydroxy		BMV1	Bone Markers and Vitamins	88
Vitamin D, 25-OH	X	ABVD	Accuracy-Based Vitamin D	114
		LN40	Vitamin D Cal Ver/Lin	132
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Vitamin E		BMV4	Bone Markers and Vitamins	88
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VZV		ID1	Nucleic Acid Amplification	200
	X	**ID5**	Varicella-Zoster Virus, Molecular	203
		IDME	Meningitis/Encephalitis Panel	207
	X	**IDM5**	Meningitis/Encephalitis Panel	207
	X	**VR1**	Virology Culture	199

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
VZV (cont.)	X	**VR2**	Viral Antigen Detection by DFA	199
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Analyte/Procedure	LAP ENR	Program Code	Description	Pg
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		FTC	Forensic Toxicology, Criminalistics	107
		T	Toxicology	98
		UT	Urine Toxicology	98
Zonisamide		ZE	Therapeutic Drug Monitoring, Extended	60
Zopiclone/Eszopiclone		DFC	Drug-Facilitated Crime	111

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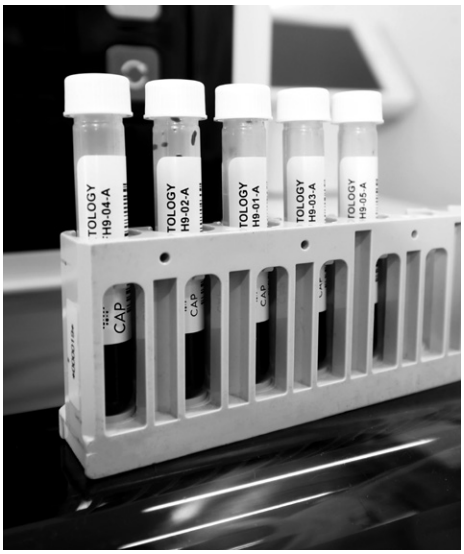

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