



COLLEGE of AMERICAN  
PATHOLOGISTS  
Laboratory Quality Solutions

## 2018 Surveys and Anatomic Pathology Education Programs

Performance you can measure. Accuracy you can trust.



# Performance you can measure. Accuracy you can trust.

Laboratory medicine is changing at a rapid pace. Our comprehensive range of programs is constantly evolving to keep you in step with these changes, enabling you to have more time for what matters most—accuracy in the laboratory.

Preview new innovations to help simplify your efforts.

## **Gain insight at a glance.**

Monitor performance across all graded CAP proficiency testing programs using the Performance Analytics Dashboard. This complimentary web-based reporting solution gives you fast access to a single laboratory or an expansive network's performance.

## **Keep pace with advances in next-generation sequencing (NGS).**

Add a level of quality assurance to ensure you deliver accurate and reliable test results with seven new NGS programs. Assess germline variants and improve diagnostic skills with the new Variant Interpretation Only (VIP), our first NGS educational program to provide CME/CE credit.

## **Submit your laboratory's slides and receive an expert evaluation of your tissue staining preparation.**

Participate in the new HistoQIP programs evaluating gynecologic biopsy preparation (HQB4), mismatch repair protein IHC staining (HQMMR), and IHC staining of non-small cell lung carcinoma (HQNSC).

## **Streamline your educational efforts using our improved process for claiming CME/CE credit.**

Claiming CME/CE credit associated with the anatomic pathology educational programs has been simplified to save you time.

***Purchase your Surveys and manage your account online. Visit [cap.org](http://cap.org) and click on the SHOP tab.***

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# Insight at a glance.



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

To view a demo, search [Performance Analytics Dashboard](#) at [cap.org](#).



## Simplify analysis and reporting of PT and accreditation performance using the Performance Analytics Dashboard.

- Quickly identify trends/patterns to mitigate risk with the ability to access up to three years or three accreditation cycles of data.
- Benchmark your laboratory against your peers and CAP-wide performance.
- Consolidate multiple CAP numbers to view a single dashboard for an entire system.

# New Developments

## Quality Management Tools

Subsection	Name	Program Code	Page(s)
Q-PROBES™	Physician Satisfaction with Clinical Laboratory Services	QP181	25
Q-PROBES	Laboratory Staff Turnover	QP182	26
Q-PROBES	Technical Competency Assessment of Body Fluid Slide Review	QP183	27
Q-PROBES	Laboratory Result Turnaround Time for Emergency Room Specimens	QP184	28

## Quality Cross Check

Section	Name	Program Code	Page(s)
Quality Cross Check	Quality Cross Check—Reticulocyte Series	RTQ, RT2Q, RT3Q, RT4Q	47

## General Chemistry and Therapeutic Drug Monitoring

Subsection	Name	Program Code	Page(s)
Special Chemistry	Trace Metals, Whole Blood	TMWB	79

## Endocrinology

Section	Name	Program Code	Page(s)
Endocrinology	Noninvasive Prenatal Testing	NIPT	87

## Toxicology

Section	Name	Program Code	Page(s)
Toxicology	Trace Metals, Whole Blood	TMWB	103
Toxicology	<b>Delayed until 2019</b> Toxicology Quality Program	TQP	108

## Hematology and Clinical Microscopy

Subsection	Name	Program Code	Page(s)
Hematology	Quality Cross Check—Reticulocyte	RTQ, RT2Q, RT3Q, RT4Q	140

## Microbiology

Subsection	Name	Program Code	Page(s)
Bacteriology	MRSA Screen, Molecular, 2 Challenge	MRS2M	179
Bacteriology	MRSA Screen, Molecular, 5 Challenge	MRS5M	179
Parasitology	Expanded Parasitology	PEX	189
Molecular Microbiology	Vector-Borne Disease—Molecular	VBDM	195

## Immunology and Flow Cytometry

Subsection	Name	Program Code	Page(s)
Immunology	Alpha-2-Macroglobulin	A2MG	204
Flow Cytometry	B-ALL Minimal Residual Disease	BALL	210
Flow Cytometry	Flow Cytometry, Plasma Cell Neoplasms	PCNEO	211

## Coagulation

Section	Name	Program Code	Page(s)
Coagulation	Apixaban Anticoagulant Monitoring	APXBN	161

## Transfusion Medicine, Viral Markers, and Parentage Testing

Subsection	Name	Program Code	Page(s)
Viral Markers	Vector-Borne Disease—Molecular	VBDM	226

## Genetics and Molecular Pathology

Subsection	Name	Program Code	Page(s)
Biochemical and Molecular Genetics	Variant Interpretation Only	VIP/VIP1	244
Biochemical and Molecular Genetics	Noninvasive Prenatal Testing	NIPT	245
Next-Generation Sequencing	Next-Generation Sequencing Undiagnosed Disorders—Exome	NGSE	248
Next-Generation Sequencing	Next-Generation Sequencing Bioinformatics Somatic Validated Material	NGSBV	249
Molecular Oncology—Solid Tumors	IGHV Mutation Analysis	IGHV	250
Molecular Oncology—Solid Tumors	Cell Free DNA	CFDNA	252
Molecular Oncology—Solid Tumors	RNA Sequencing	RNA	252

## Anatomic Pathology

Subsection	Name	Program Code	Page(s)
Surgical Pathology	CAP/NSH HistoQIP Mismatch Repair IHC	HQMMR	264
Surgical Pathology	CAP/NSH HistoQIP Non-small Cell Lung Carcinoma IHC	HQNSC	265
Surgical Pathology	CAP/NSH HistoQIP Specialty Series Gynecologic Biopsy	HQBX4	266





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

- Offer your staff more than 100 CE credits.
- Enhance your learning with CE content that is tightly integrated with proficiency testing challenges.
- Meet certification and licensure requirements with CE across multiple disciplines.

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## 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 enduring materials educational activities for a maximum of the stated number of *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### Note to CME participants of enduring\* materials courses:

***An AMA requirement mandates that all physicians wishing to claim CME credits must pass a scored assessment. All CAP enduring materials CME courses require participants to pass a scored assessment prior to claiming credit.***

\*Enduring courses are those courses that endure over time, such as print or online courses.



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. The states of California and Florida also approve these activities for continuing education credit.

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 and Therapeutic Drugs	C1, C3, C3X, C4, C7, CZ, CZX, CZ2X, Z	Chemistry	56-58
Quality Cross Check—Whole Blood Glucose	WBGQ	Chemistry	67
Endocrinology	Y, YY, DY, BU, BGS, RAP, ING, EPO	Chemistry	84-86, 89
Coagulation, Limited	CGL, CGB, CGDF	Coagulation	158
CAP/ACMG Cytogenetics	CY, CYBK	Cytogenetics	236
Basic Hematology	HE, HEP	Hematology and Clinical Microscopy	134
Blood Cell Identification, Limited	BCP, BCP2	Hematology and Clinical Microscopy	134
Hematology Automated Differentials FH Series	FH1-FH13, FH1P-FH13P	Hematology and Clinical Microscopy	135
Virtual Peripheral Blood Smear	VPBS	Hematology and Clinical Microscopy	141
Bone Marrow Cell Differential	BMD	Hematology and Clinical Microscopy	138
Clinical Microscopy	CMP, CMP1	Hematology and Clinical Microscopy	144
CAP/NSH HistoQIP	HQIP	Histology	263
Immunology	IG, IGX, ANA, ASO, CRP, HCG, IM, RF, RUB, IL, M/OLI, G, LPE/SPE/UBJP, RDS/CCP, S2, S4, S5	Immunology	74, 76, 202-203, 206-208
D-Dimer Calibration Verification/Linearity	LN42	Instrumentation	128
Bacteriology	D	Microbiology	170
Mycology and Aerobic Actinomycetes	F	Microbiology	184
Limited Bacteriology	D1, D2, D3, D4, D5, D6, D7, MC1, MC2, MC3, MC4, MC5	Microbiology	172-175
Parasitology	P, P3, P4, P5	Microbiology	187
Sperm Count, Motility, Morphology, and Viability	SMCD, SM1CD, SM2CD	Reproductive Medicine	154
Semen Analysis	SC, SC1, PV, SM, SV, ASA	Reproductive Medicine	154
Synthetic Cannabinoid/Designer Drugs	SCDD	Toxicology	105
CAP/AACC Urine Drug Testing, Screen	UDS, UDS6	Toxicology	98
Oral Fluid for Drugs of Abuse	OFD	Toxicology	100
Drug Monitoring for Pain Management	DMPM	Toxicology	106
Forensic Urine Drug Testing, Confirmatory	UDC	Toxicology	99
CAP/AACC Alcohol/Ethylene Glycol/Volatiles	AL1	Toxicology	101
Ethanol Biomarkers	ETB	Toxicology	102
Drug-Facilitated Crime	DFC	Toxicology	107
Serum Drug Screening	SDS	Toxicology	101
Trace Metals, Urine	TMU	Toxicology	103
Transfusion Medicine	J, J1, JE1, JAT, JATE1, EXM, EXM2	Transfusion Medicine	214-216

**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)
<b>Quality Management Tools</b>			
QP181 - Physician Satisfaction with Clinical Laboratory Services <b>NEW</b>	QP181	Final Critique	25
QP182 - Laboratory Staff Turnover <b>NEW</b>	QP182	Final Critique	26
QP183 - Technical Competency Assessment of Body Fluid Slide Review <b>NEW</b>	QP183	Final Critique	27
QP184 - Laboratory Result Turnaround Time for Emergency Room Specimens <b>NEW</b>	QP184	Final Critique	28
<b>Hematology and Clinical Microscopy</b>			
Blood Cell Identification	BCP, BCP2	Participant Summary	134
Bone Marrow Cell Differential	BMD	Participant Summary	138
Extended Virtual Peripheral Blood Smear	EHE1	Participant Summary	142
Hematology Automated Differentials FH Series	FH1–FH13, FH1P–FH13P	Participant Summary	135
Basic Hematology	HE, HEP	Participant Summary	134
Hemoglobinopathy	HG	Participant Summary	139
Virtual Body Fluid	VBF	Participant Summary	146
Virtual Peripheral Blood Smear	VPBS	Participant Summary	141
Clinical Microscopy	CMP, CMMP, CMP1	Participant Summary	144-145
<b>Microbiology</b>			
Blood Parasite	BP	Participant Summary/Final Critique	188
Expanded Bacteriology	DEX	Participant Summary/Final Critique	171
Mycobacteriology	E	Participant Summary/Final Critique	183
Yeast	F1	Participant Summary/Final Critique	184
Parasitology	P	Participant Summary/Final Critique	187
Ticks, Mites, and Other Arthropods	TMO	Participant Summary	189
Worm Identification	WID	Participant Summary	189

**\*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.

## Maintenance of Certification (MOC)

Maintenance of Certification (MOC) is the board certification program that involves continuous professional development and ensures that an American Board of Pathology (ABP) 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 ABP to fulfill specific MOC requirements. They are listed below with their descriptions.

All CAP education activities providing CME credits meet the MOC Part II: Lifelong Learning requirements. Some programs will meet the requirements for Self-Assessment Module (SAM) and/or MOC Part IV at the laboratory or the individual levels. Programs that meet Part IV are identified within the description of the program. Visit the CAP website for the current list of programs that meet the requirements for MOC Part II and Part IV.

### 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.



**Self Assessment Module:** This activity fulfills the SAM credit requirements for MOC and is therefore eligible for SAM credit. Participants who successfully complete an online assessment may apply their earned credit(s) to the ABP's SAM requirements.

**Note to CME/CE participants:** The AMA mandates that all education providers (such as the CAP) require participants pass assessment questions in an enduring\* program in order to earn and claim CME credits. All participants in any activity granting CME/CE will be required to complete and pass assessment questions before claiming their credits.

**For CME/SAM activities ONLY:** Participants have a total of three opportunities to take and pass the post-test, with feedback provided after each question. The AMA requires that participants pass the post-test in an enduring program to claim credit; therefore, if they do not pass, they cannot claim credit.

*\*Enduring programs are those courses that endure over time such as print or online courses.*

## 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	270
Clinical Pathology Improvement Program*	CPIP/CPIP1	15****	NA	Online	14
Digital Slide Program in Dermatopathology*	DPATH/DPATH1	15****	NA	Online (DigitalScope®)	259
Digital Slide Program in FNA*	FNA/FNA1	10	10	Online (DigitalScope)	277
Fine-Needle Aspiration Glass Slides	FNAG/FNAG1	10	10	Glass Slides	278
Forensic Pathology	FR/FR1	12	12	Online	281
Digital Slide Program in Hematopathology	HPATH/HPATH1	12****	12	Online (DigitalScope)	143
Nongynecologic Cytopathology Education**	NGC/NGC1	25	25	Glass Slides With Online Cases (DigitalScope)	276
Neuropathology Program	NP/NP1	10****	NA	Online (DigitalScope)	271
Gynecologic Cytopathology PAP Education Program***	PAPCE/APAPCE PAPJE/APAPJE PAPKE/APAPKE PAPLE/APAPLE PAPME/APAPME Series 1 or 2	8	8	Glass Slides	273
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	272
Cancer Staging Improvement Program	PCSP/PCSP1	5****	NA	Online (DigitalScope)	262

\*Program is available for purchase online. Go to [cap.org](http://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 glass slides.

\*\*\*\*SAM credits are included in CME totals for the appropriate programs.

Education Programs					
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	256
Online Performance Improvement Program in Surgical Pathology*	PIPW/PIPW1	40	NA	Online (DigitalScope)	257
Nongynecologic Cytopathology Intraoperative Touch Imprint/ Crush Preparation Program*	TICP/TICP1	10****	10	Online (DigitalScope)	261
Variant Interpretation Only	VIP/VIP1 <b>NEW</b>	3	3	Online	244
Virtual Biopsy Program*	VBP/VBP1	25****	NA	Online (DigitalScope)	258

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

\*\*\*\*SAM credits are included in CME totals for the appropriate programs.

### 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 select CONTACT & SUPPORT. 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.

## Have you created or updated your CAP Profile?

Each laboratory staff member should have their own profile. Your profile is transferrable when you leave your current position. Use it to maintain information about yourself, including:

- Business affiliations
- Personal contact information
- Certifications
- Specialties and skills
- Contact preferences
- Addresses
- Inspector-related information

**To create or update your profile, visit cap.org, log in, and click on UPDATE MY PROFILE.**



### Clinical Pathology Improvement Program (CPIP)

The Clinical Pathology Improvement Program (CPIP) delivers 12 online clinical laboratory cases to study—one per month—and an opportunity to earn up to 15 CME/SAM credits annually. Assess and improve clinical pathology skills and fulfill Maintenance of Certification (MOC) requirements.

CPIP cases feature real-life case scenarios, including images and clinical background. Participants work through sequentially revealed information and a series of prompts to arrive at a resolution—just as in the laboratory.

Cases include thought-provoking questions with feedback and a multiple-choice post-test. Participants who earn passing scores on post-tests may apply their earned credits to the ABP's MOC SAM requirements.

## Clinical Pathology Improvement Program CPIP/CPIP1

Program Name	Program Code	Cases/Year
	CPIP/CPIP1	
Online cases in clinical pathology	■	12

### Additional Information

Pathologists and residents can use CPIP online to assess and improve their skills in clinical pathology.

- Case topics may originate from the ABP's general listing suggested for MOC including laboratory administration and operations, transfusion medicine, chemistry, coagulation, hematology, immunology, microbiology, and molecular genetic pathology.
- Cases may include patient history, case-related static images, and whole slide images.
- Monthly individual CPIP cases can also be ordered online. Go to [cap.org](http://cap.org) and choose the Learning tab. To order both CPIP and CPIP1, please call 800-323-4040 or 847-832-7000 option 1.

### Program Information

- One online clinical laboratory case per month
- CPIP1 - Additional pathologist (within the same institution) reporting option with CME/SAM credit; must order in conjunction with CPIP
- Earn a maximum of 15 CME/SAM credits (*AMA PRA Category 1 Credits™*) per year
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Twelve cases per year; your CAP shipping contact will be notified [via email](#) when the activity is available





# Competency Assessment Program

About one of every four 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. Plus, if employees need a refresher learning opportunity, reassessment courses are included.
- **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.

Please see next pages for all course descriptions. For more information, visit [cap.org](http://cap.org) and choose Learning for Laboratory Professionals via the Learning tab.

## Assessment Course Schedule

Discipline	January 2018 Release	July 2018 Release
Blood Banking/Transfusion Medicine—Generalist	Antibody screen and ID	Transfusion reactions
Blood Banking/Transfusion Medicine—Specialist	Antibody screen and ID	Transfusion reactions
Chemistry	Liver and renal testing	Chemistry QC, calibration, and reportable range
Hematology and 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—Generalist	Gram stain: organism detection and differentiation	Urine and body fluid cultures
Microbiology—Specialist	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

## Pro Course Schedule

Discipline	January 2018 Release	July 2018 Release
Blood Banking/Transfusion Medicine	Direct antiglobulin test	ABO typing discrepancies
Chemistry	Clinical toxicology	Electrolytes, acid base and anion gap
Hematology and Coagulation	Erythrocyte morphology	White blood cell inclusions
Histology	Immunohistochemistry, part 2	Histology specimen handling
Immunology	Monitoring the testing process in immunology	Human chorionic gonadotropin and fetal fibronectin
Microbiology	Genital tract pathogens	Microbiology of wounds
Phlebotomy/Specimen Processing	Phlebotomy professionalism and ethics	Venipuncture
Point-of-Care Testing	Provider performed testing	Urine dipstick
Quality Programs/Management	Document control	New instrument method validation
Safety	Hazardous chemicals	Laboratory waste and spill management
Urinalysis/Body Fluids	Microscopic urinalysis, part 2—crystals and casts	Serous and synovial fluids

## 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.

## So you're going to collect a blood specimen

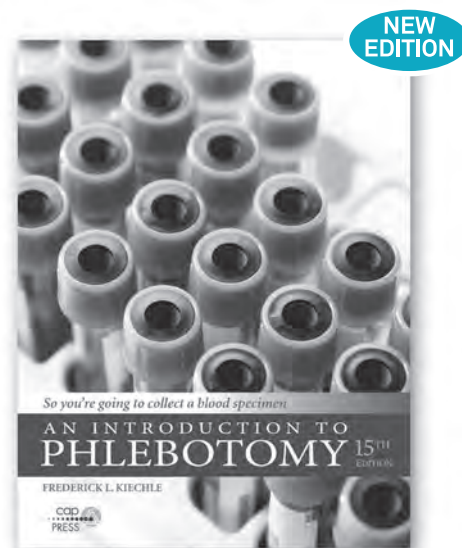
Up to 70% of laboratory errors occur prior to sample analysis and testing. Ensure everyone on your team is equipped to procure a quality blood specimen with this modern update to the classic reference guide.

- Step-by-step instructions for venipuncture, skin puncture, and infant heelstick
- Best practices for collection, transporting, processing, and storage
- Procedures for blood smears, blood cultures, and neonatal screening
- Special considerations for the difficult venipuncture
- Four ways to inspire confidence in your patient

**Buy multiple copies and save.** Call 800-323-4040 option 1 (Country Code 001).

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- printed books at [estore.cap.org](http://estore.cap.org)
- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



**Item number:** PUB225

Spiral bound; 84 pages;

30+ images and tables; 2017

## QMED™ Online Educational Courses

Learn quality tools and techniques with case examples from medical laboratories.



### Program information

- CAP Quality Management Educational Resources (QMED) courses help you improve your processes and eliminate waste.
- CAP QMED courses help you build a quality management system—one piece at a time—that sustains your continuous improvement and Lean efforts.
- CAP QMED courses are delivered online via a highly interactive user interface that allows you to learn at your own pace.
- All CAP QMED courses are licensed for one year, allow sharing of logins, and include continuing education (CE) credit.

### CAP online interactive QMED courses will help you:

- Understand the concept of a quality management system
- Self-assess your current QMS against international quality standards
- Plan and resource for the development of your QMS
- Interpret ISO 15189 requirements
- Improve your document control system
- Perform internal audits using tracer audit and process audit methods
- Implement and refine occurrence management with root cause analysis
- Write an effective quality manual
- Measure, analyze, and set goals with senior management

### About the Courses

#### 15189 Walkthrough

*Order ISOEDWT*

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. Hear directly from 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

#### QMS Implementation Roadmap

*Order ISOEDRM*

Outlines the practical steps necessary to build, implement, and maintain a quality management system that meets the ISO 15189 standard. Gain perspective on practices (and pitfalls) straight from the CAP's ISO 15189 assessors, as well as ISO 15189-accredited laboratories. Designed for laboratory quality managers, plus your implementation team members.

2 CE credits available

#### Root Cause Analysis

*Order ISOEDRC*

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. The course is designed for laboratory quality managers and implementation team members.

6 CE credits available

**Internal Auditing***Order ISOEDIA*

Increase your capabilities for internal auditing with a proven methodology for process audits, tracer audits, and laser audits. Learn from the CAP's ISO 15189 assessors how to prepare for interviews, communicate findings to your quality management team, and use audits to drive process improvements.

3 CE credits available

**Document Control***Order ISOEDDC*

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. All this from the CAP's ISO 15189 assessors who give examples and commentary on common pitfalls and issues.

2 CE credits available

**Quality Manual Development***Order ISOEDQM*

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

**Management Review***Order ISOEDMR*

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

**Mistake Proofing***Order ISOEDMP*

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 commentary by CAP member pathologists with experience using Lean and other process improvement techniques.

4 CE credits available

**Quality Culture***Order ISOEDCL***NEW**

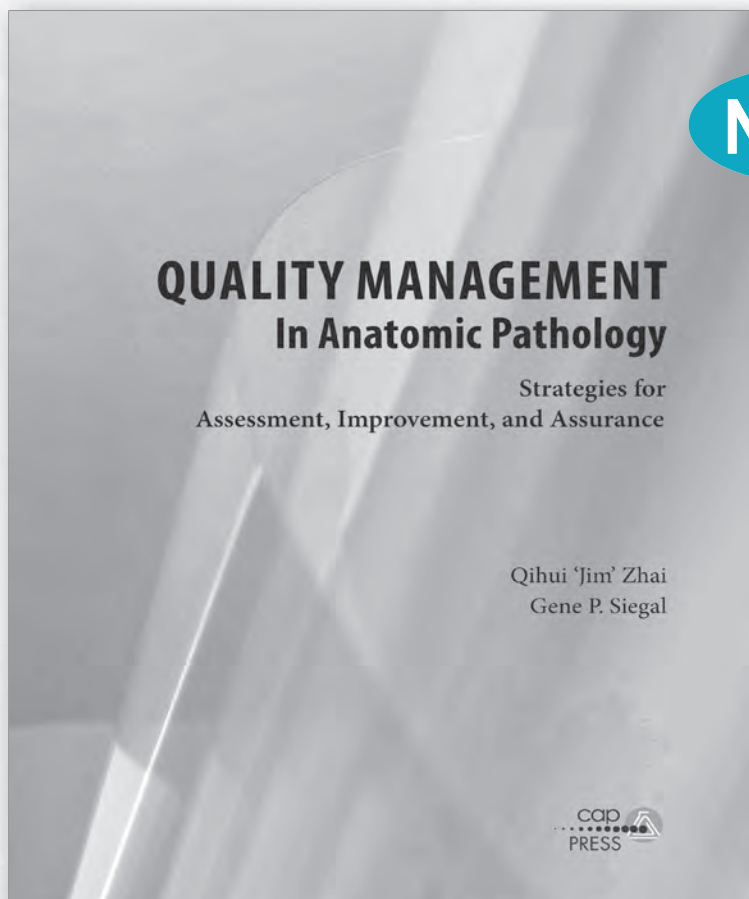
Designed for laboratory medical directors, administrative directors, quality managers, and other leaders who can affect the culture of their laboratory through their decisions and actions. The course provides an adaptable program for proactively shaping culture. It includes commentary by CAP member pathologists. *This course will be released in January 2018.*

2 CE credits available

Make sure your laboratory team is ready to meet the challenges ahead. Sign up now for this comprehensive set of learning tools.

For more information, visit [cap.org](http://cap.org) and search QMED or call 800-323-4040 or 847-832-7000 option 1.

# How current is your laboratory quality management plan?



**NEW**

Item number: PUB125  
Softcover; 228 pages;  
135+ figures and tables; 2017

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.

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# 3

## Quality Management Tools



### Engage in quality measures with our new Q-PROBES™ programs.

- Assess physician satisfaction with laboratory services to target quality improvement activities (QP181).
- Benchmark institutional turnover rates for laboratory staff and determine human resource practices for lower rates of turnover (QP182).
- Focus your laboratory education needs in its body fluid competency program (QP183).
- Examine your turnaround times on critical laboratory tests needed by the emergency department (QP184).

### Quality Management Tools

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### Discontinued Programs

- Utilization of Red Blood Cell Transfusions (QP171)
- Workflow Process Mapping (QP172)
- Phlebotomy Staffing Ratios (QP173)
- Preanalytic Errors Competency (QP174)
- Mislabeled Cases, Specimens, Blocks, and Slides in Surgical Pathology (QT19)

# Quality Management Tools

## 3

### Quality Management Tools

Use the CAP's Quality Management Tools (QMT) to **improve the Total Testing Process** by identifying quality improvement opportunities of selected key processes in the clinical and anatomic pathology laboratories, examining preanalytical, analytical, and postanalytical phases:

- **Establish realistic goals** by comparing performance against similar institutions with comparable demographics
- **Monitor progress** through unique and robust quality indicators on a periodical 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

**Q-PROBES™** A One-Time Opportunity to Perform In-Depth Quality Assessment

**Q-TRACKS®** A Program for Continuous Quality Monitoring

**Q-MONITORS®** Customized Quality Monitors Program

Q-PROBES, Q-TRACKS, and Q-MONITORS activities meet the American Board of Pathology MOC Part IV Practice Performance Assessment requirements.



# Q-PROBES, Q-TRACKS, and Q-MONITORS

offer a comprehensive collection of tools to complement your quality management program needs.\*

Select Q-PROBES, Q-TRACKS, and Q-MONITORS studies to support your quality improvement initiatives.	Prenalytic	Analytic	Postanalytic	Anatomic Pathology	Clinical Pathology	Turnaround Time	Patient Safety	Microbiology	Transfusion Medicine	Chemistry/Hematology	Customer Satisfaction
<b>Q-PROBES</b>											
Physician Satisfaction with Clinical Laboratory Services (QP181) <b>NEW</b>	■		■		■	■	■	■	■	■	■
Laboratory Staff Turnover (QP182) <b>NEW</b>					■	■	■	■	■	■	■
Technical Competency Assessment of Body Fluid Slide Review (QP183) <b>NEW</b>		■			■		■			■	
Laboratory Result Turnaround Time for Emergency Room Specimens (QP184) <b>NEW</b>	■	■			■	■	■	■	■	■	■
<b>Q-TRACKS</b>											
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)			■		■		■			■	
Turnaround Time of Troponin (QT15)		■			■	■	■			■	■
Corrected Results (QT16)			■		■		■	■	■	■	■
Outpatient Order Entry Errors (QT17)					■		■			■	
<b>Q-MONITORS</b>											
Monitoring of Troponin Metrics for Suspected MI (QM1)	■	■	■		■	■	■			■	■

\*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).

## Q-PROBES

### A One-Time Opportunity to Perform In-Depth Quality Assessment

3

Quality Management Tools

**Implement quality monitoring**—Use Q-PROBES short-term comprehensive quality studies<sup>1</sup> 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. Q-PROBES studies analyze hot topics and industry trends to keep the laboratory current.

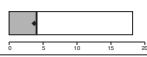
**Gain experience in data collection and analysis**—Participants will collect data during predetermined dates. Based on submitted data, the CAP provides personalized reports with the individual participant's performance compared against other participants.

**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 Q-PROBES program receive:

- User guide
- Templates and instructions for data collection
- Individual report, how to interpret the results guide, overall aggregated data
- Data Analysis and Critique that includes data distributions and analysis of laboratory practices and commentaries from pathologist experts on improvement opportunities
- Access to the scientific articles that are published with the results of the studies

Q-PROBES activities meet the American Board of Pathology MOC Part IV Practice Performance Assessment requirements.

Q-PROBES™ 2015: QP151 - Blood Bank Safety Practices Quality Management Report: Individual Report of Results					
Performance Indicator	Your Result	All Institutions Percentiles			Performance Distribution
		10th	50th	90th	
		(left edge of bar)	(vertical line)	(right edge of bar)	
ABO mislabeled specimen rate (per 1000 specimens) (n=30)	3.68	0.00	4.04	18.19	
Performance note: The bar graph ranges from the 10th to 90th percentile. The thick vertical line represents the median value. Lower percentiles (shaded area and lower) represent better relative performance.					
Additional Information	Your Result	All Institutions Percentiles			
		10th	50th	90th	
ABO typing result discrepancy rate (per 1000 specimens) (n=29)	2.17	0.00	0.00	1.82	
Estimated annual rate of ABO typing result discrepancies (per 1000 specimens) (n=30)	0.23	0.00	0.00	0.41	
Mislabeled ABO specimen rejection rate (%) (n=15)	100.0	88.9	100.0	100.0	

<sup>1</sup> Q-PROBES studies are available only one time annually and may not be repeated in the future.

NEW

## Physician Satisfaction with Clinical Laboratory Services QP181

3

Quality Management Tools

### Introduction

Assessing physician satisfaction with laboratory services provides valuable information for targeting quality improvement activities. The CAP's Laboratory Accreditation Program requires that institutions measure customer satisfaction (eg, physicians, patients, nurses) with laboratory services. This Q-PROBES study will assist your organization in meeting these requirements while helping to identify areas for improvement, and furthering understanding of client needs to ensure future physician satisfaction with your services. Enrollment in QP181 can help meet College of American Pathologist (Laboratory General Checklist Statements GEN.20316, GEN.20335) and Joint Commission requirements for laboratory accreditation.

### Objectives

This study will assess physician satisfaction with laboratory services and correlate this with laboratory workload, performance improvement activities, and customer support services.

### Data Collection

Clinicians will be asked to complete a satisfaction survey regarding their experience across various clinical laboratory service categories, including turnaround time, critical value notification, diagnostic accuracy, communication, accessibility, responsiveness, and courtesy. They will also indicate whether they would recommend the laboratory to another physician.

The surveys will be available in two formats: electronic distribution with direct survey submission to the CAP, or paper response forms. The CAP can accept up to 50 paper surveys, but the number of electronic submissions is unlimited.

### Performance Indicators

- Overall mean satisfaction score with clinical laboratory services
- Mean satisfaction scores for the specific service categories
- Laboratory recommendation rate (%)

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

## Laboratory Staff Turnover QP182

**NEW**

3

Quality Management Tools

**Introduction**

The national vacancy rate for medical technologists is 10.4%. The turnover rate for all laboratory employees is not known. Laboratory medical directors are keenly interested in laboratory staff turnover rates since licensing and accreditation agencies hold them responsible for ensuring that clinical laboratories are adequately staffed. Hospital and laboratory administrators share that interest, as their boards of trustees hold them responsible for the successful operation and financial solvency of their institutions.

**Objective**

This study will measure national institutional turnover rates for laboratory staff and determine human resources practices associated with lower rates.

**Data Collection**

Laboratories will provide data on full-time equivalent (FTE) employees, job status changes, and job vacancies. From this data, turnover rates for several classes of laboratory workers will be calculated. Laboratories will be asked to complete a detailed questionnaire concerning human resources practices in order to identify characteristics that are associated with lower and higher turnover rates.

**Performance Indicators**

- Overall laboratory employee turnover rate
- Turnover rate by personnel category
- Vacancy rate

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

## Technical Competency Assessment of Body Fluid Slide Review QP183

### Introduction

Technologists receive a variety of body fluids for examination in the laboratory and must maintain their identification skills of these specimens. Laboratories are required to provide education and assess competency in this area on a regular basis.

Participation in this Q-PROBES study helps laboratories meet CLIA personnel requirements (Subpart M, 42 CFR §493.1), the CAP Laboratory Accreditation Program Checklist Statement requirement (GEN.55500 Competency Assessment of Testing Personnel), and Joint Commission HR.01.06.01 for competency assessment of nonwaived testing personnel.

### Objective

This study will 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 body fluid cell counts and identification of other body fluid features. The individual competency assessment will be performed using whole slide images that were evaluated by hematology experts. Results of this study will assist individuals, the laboratory director, and manager with areas to focus on for improvement.

Online whole slide images are powered by DigitalScope technology. See system requirements on page 13.

### Data Collection

Information will be collected from each site regarding minimum qualifications and experience requirements of their technologists, their ongoing educational programs and requirements, as well as relevant procedures and policies.

A series of whole slide images will be available online to each participating institution to assess their technologists' ability to perform a cell differential on Wright Stained body fluid and identify miscellaneous cells and inclusions in cytocentrifuged preparations. Each program ordered will include input forms for use by up to 10 technologists. Laboratories that need forms for more than 10 individuals should order one additional program for each 10 additional technologists.

Participants will provide additional information about their competency assessment programs, continuing education, and professional background.

### Reports

#### Laboratory Summary

- Institution performance shown by case and by technologist
- Institution performance compared to all institutions
- Overall laboratory performance based on the facility's individual technologist performance(s)

#### Technologist Summaries

- Individual technologist performance for each case and an overall performance
- Technologist's ability to identify various WBC types, red blood cells, and other items present in normal and abnormal cases in comparison to consensus responses

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

## Laboratory Result Turnaround Time for Emergency Room Specimens QP184

### Introduction

Fast delivery of test results is important for patient care in the emergency department (ED). Therefore, monitoring turnaround time (TAT) is an important quality measure. Timeliness of reporting results for high volume, automated tests such as serum potassium or troponin is commonly used as the key performance indicator. However, other equally important tests may inherently take longer to complete due to processing or analysis requirements. Factors involved in TATs could account for bottlenecks in diagnosis, treatment, or patient flow if impacted by any of these tests.

### Objective

The objective of this study is to provide a more complete assessment of TAT testing for emergency room care by examining a representative variety of critically important tests from various functional areas of the laboratory. Tests to be studied include those that may be critical for patient care or subsequent workup, and include blood type and screen, D-dimer, influenza A virus, microscopic urine leukocyte count, serum potassium, urine drug screen, and urine pregnancy. In addition, the study will examine operational and administrative factors which may influence performance.

### Data Collection

Laboratories will retrospectively record accession and report times for each designated test over a variety of days of the week and shifts.

Laboratories will provide their expected TAT goals, if available, for each test examined in the study.

Laboratories will complete a survey about their ED STAT test menu.

### Performance Indicators

- Accession to reporting TAT for STAT ordered ED tests
- Compliance rate with expected TAT goals for STAT ordered ED tests

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

# Q-TRACKS

## A Program for Continuous Quality Monitoring

**Identify and monitor opportunities for quality improvement over time**

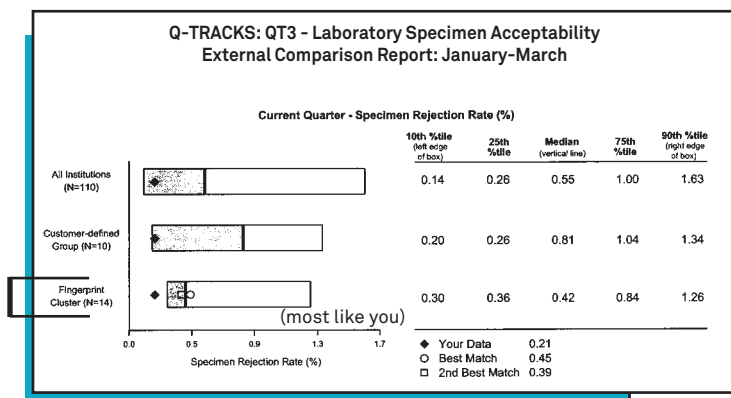
Use established Q-TRACKS programs to identify opportunities to quantitate your quality improvement measures.

**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.



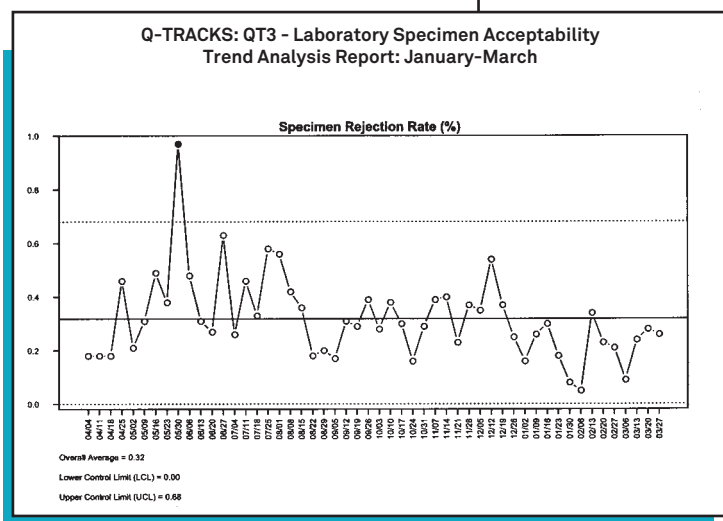
### Step 2:

Identify improvement opportunities.

Specimen Rejection Reasons	Your Data (%)	Aggregate Percent
Specimen lost/not received	0.0	12.1
Unlabeled specimen	6.4	2.2
Mislabeled specimen	4.5	3.0
Incompletely labeled specimen or inadequately filled-out form	0.0	1.6
Specimen hemolyzed	40.0	29.3
Specimen clotted	29.1	17.9
Insufficient specimen quantity	16.4	15.1
Unacceptable variance (delta check)	0.0	3.1
Wrong container	3.6	2.5
Wrong temperature	0.0	0.4
Other reason	0.0	12.7

\* This percent is a breakdown of the 72,643 rejected specimens for this quarter.

External Comparison Report - Page 1  
CAP Number: SAMP-01-01



### Step 3:

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

**Participants in the Q-TRACKS program receive:**

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

Q-TRACKS activities meet the American Board of Pathology MOC Part IV Practice Performance Assessment requirements.

## Enhance the culture of patient safety in your laboratory

*Patient Safety in Anatomic & Clinical Pathology Laboratories* enables you to connect the patient safety culture in your laboratory to the overall mission and goals of your health care enterprise.

- 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 new accreditation milestones advance patient safety initiatives

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**Item number:** PUB316  
Softcover; 128 pages; 2017



## Q-TRACKS Clinical Pathology Monitors

3

Quality Management Tools

### Patient Identification Accuracy QT1

In order to report accurate laboratory results and meet The Joint Commission National Patient Safety Goal #1: “Identify patients correctly,” institutions must properly identify patients. Since most laboratories perform testing away from the patient, patient identification, and 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 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 Checklist statement note MIC.22630: “It is recommended that blood culture statistics, including number of contaminated cultures, be maintained and reviewed regularly by the laboratory director. The laboratory should establish a threshold for an acceptable rate of contamination. Tracking the contamination rate and providing feedback to phlebotomists or other persons drawing cultures has been shown to reduce contamination rates.”

#### 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. (diphtheroids); 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 three 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 Q-TRACK may assist the laboratory in monitoring compliance with Laboratory 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 could pose risks to patient safety.

### 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: 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 three 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 (GEN.20335). Use this monitor to help meet this requirement.

### Objective

Assess patient satisfaction with outpatient phlebotomy services by measuring patients' assessments of waiting time, discomfort level, courteous treatment, and overall satisfaction.

### Data Collection

On a monthly basis, participants will provide copies of a standardized questionnaire 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:
  - o Overall experience
  - o Waiting time
  - o Patient comfort
  - o Courtesy
  - o Patient privacy
  - o 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 Checklist requirement 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 three 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, and the CAP (GEN.20316, COM.30000) 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 three weeks prior to the quarter.

## Turnaround Time of Troponin QT15

The swiftness with which physicians establish diagnoses of acute myocardial infarction (AMI) in patients presenting to the emergency department (ED) with chest pain may determine the type and predict the outcome of therapy those patients will receive. Included in the total time consumed in establishing diagnoses of AMI are the component intervals required to measure biochemical markers of myocardial injury. One of the most critical biochemical markers is troponin. Use this monitor to help meet CAP Checklist requirement GEN.20316 QM Indicators of Quality.

### Objective

Determine the median order-to-report turnaround time (TAT) of troponin (I or T) ordered to rule out myocardial infarction and the percent of troponin results reported by each institution's established deadline.

### Data Collection

On six predetermined days per month, participants will record TATs (in minutes) for three randomly selected troponin specimens obtained from ED patients on each of three traditional shifts, a total of nine measurements. Participants will measure TATs from the time of test order to the time results are available to ED personnel.

### Performance Indicators

- Median troponin order-to-report TAT (minutes)
- Troponin TAT compliance rate (%)

## Corrected Results QT16

The CAP developed this Q-TRACKS 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 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)

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

## 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, potentially extending a patient's hospital stay and prolonging 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 Checklist statement GEN.20136 for test order accuracy.

### 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, missing, and extra test errors; 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 three weeks prior to the quarter.

## Q-TRACKS Anatomic Pathology Monitors

### Gynecologic Cytology Outcomes: Biopsy Correlation Performance QT5

3

Quality Management Tools

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.

#### 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 three weeks prior to the quarter.

## Q-MONITORS

### A Program for a Customized Comprehensive Assessment

3

Quality Management Tools

#### Evaluate quality improvements in your laboratory

With today's focus on reducing medical errors, achieving and maintaining excellence is key to success. Using continuous monitoring, Q-MONITORS provide a comprehensive assessment of key processes in your institution.

#### Structure your data collection and analysis for success

Use Q-MONITORS to help build and improve data collection and analyze processes that contribute to quality of care, patient safety, and outcomes. Observe performance trends over time to identify and monitor opportunities for quality improvement through quantitative quality measures.

#### Establish realistic laboratory benchmarks and performance goals

Q-MONITORS offer customized programs that address process-, outcome-, and structure-oriented quality assurance issues. Establish benchmarks through external database comparisons and compare your performance to establish goals for performance improvement.



## Q-MONITORS Customized Quality Monitoring Program

### Monitoring of Troponin Metrics for Suspected MI QM1

3

Quality Management Tools

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. Emergency departments and chest pain centers should, therefore, have effective procedures for ensuring optimal turnaround time (TAT) for troponin and a process for ongoing monitoring to ensure that performance meets expectations.

#### Objective

Determine and monitor troponin TATs for patient arrival to result availability and/or up to six time intervals within the total testing process for patients presenting to the ED with chest pain.

#### 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 patient arrival, troponin test order, specimen collection, laboratory receipt, and result availability. It is not necessary to provide data from each TAT component. Participants select which TAT metrics to monitor, with the option to monitor all metrics.

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

#### Metrics

Depending on the data submitted, the following metrics will be provided. In addition, TAT benchmarking, as compared to all institutions, will be provided for both point-of-care and clinical laboratory testing for patient arrival to result availability and specimen collection to result availability.

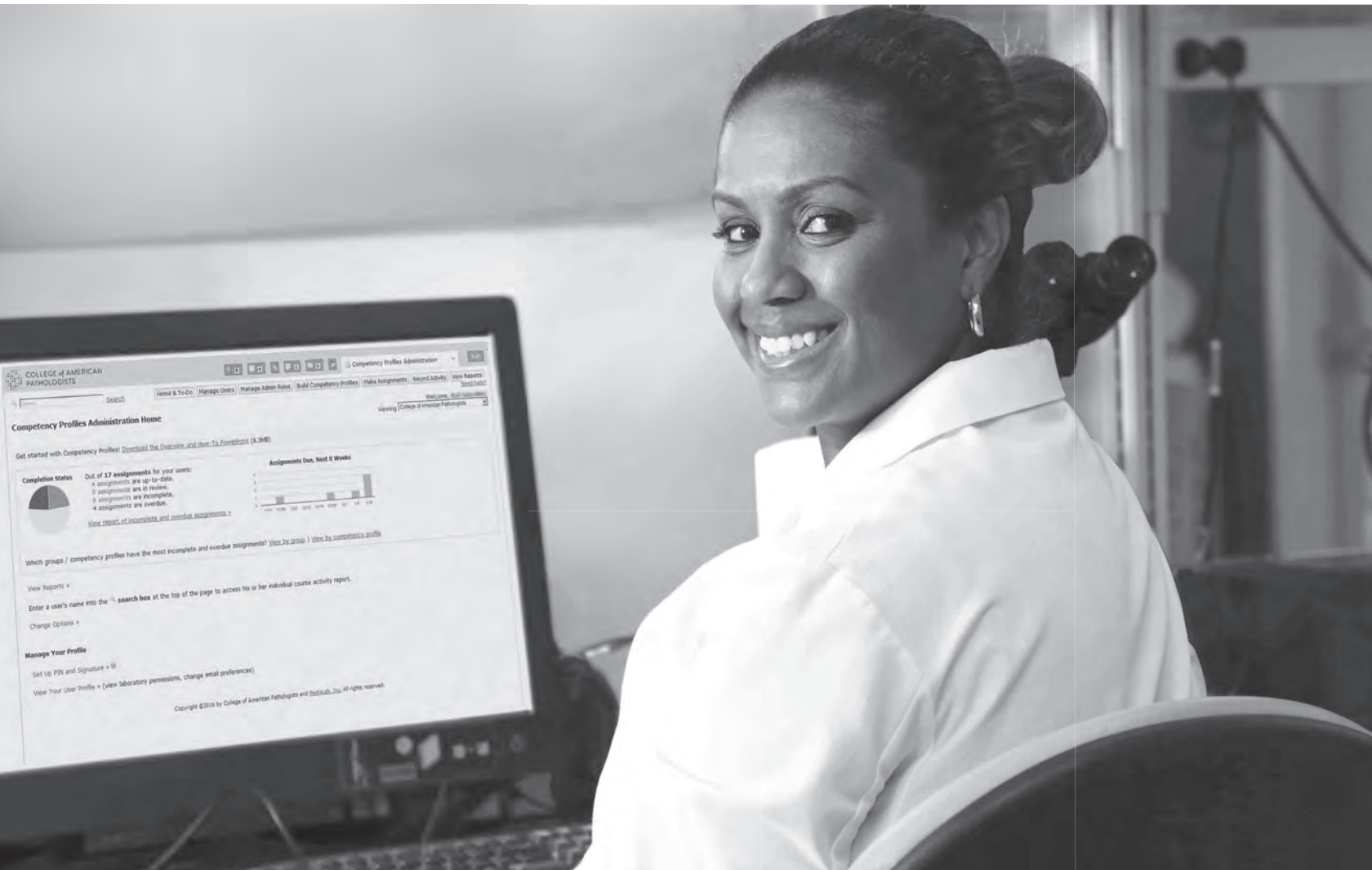
- Patient arrival to result availability
- Specimen collection to result availability
- Test order to result availability
- Patient arrival to test order
- Test order to specimen collection
- Specimen collection to laboratory receipt
- Laboratory receipt to result availability

#### Performance Indicators

- Median TAT for troponin testing intervals (monthly)
- Test order to result availability compliance rate (if applicable)
- Specimen collection to result availability compliance rate (if applicable)

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

# If it's not documented, it's not compliant. Period.



Documenting the competency assessment of your staff is the #1 deficiency cited by major laboratory accreditors. It's true—one in four laboratories do not fully meet the documentation requirements of competency assessment.

You may know that your team follows all CLIA regulations to the letter. But when inspection time comes—if it's not documented, it's considered a deficiency. Learn how to align your CLIA competency assessment plan with the quality assurance processes you already perform regularly.

**Discover how the CAP's  
Competency Assessment  
Program can improve your  
laboratory's readiness  
for inspection.**

**Learn more at [cap.org](http://cap.org) and search for  
Competency Assessment or  
email [competency@cap.org](mailto:competency@cap.org).**

# 4

## Quality Cross Check



### Simplify biannual instrument comparability studies with Quality Cross Check.

- Receive custom reports with peer group evaluations and instrument comparability statistics.
- Monitor up to 30 glucose meters with Quality Cross-Check—Whole Blood Glucose program (WBGQ).

### New Programs

**NEW**

---

Quality Cross Check—Reticulocyte Series (RTQ, RT2Q, RT3Q, RT4Q).....47

## 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.

### 4

#### Quality Cross Check

#### 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 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 Surveys 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 is 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/Shipment
	CZQ	
See Survey CZ analytes on pages 56-58	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey CZ on pages 56-58. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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—BNP BNPQ

Analyte	Program Code	Challenges/Shipment
	BNPQ	
BNP	■	3
NT-proBNP	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey BNP or BNP5 on page 61. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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/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
- Two shipments per year



### Quality Cross Check—Body Fluid Chemistry FLDQ

Analyte	Program Code	Challenges/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 Survey FLD on page 72. For additional information about the CAP Quality Cross Check program, see page 42.

#### Program Information

- Three 3.0-mL specimens in duplicate
- Report up to three instruments
- Two shipments per year

### Quality Cross Check—Hemoglobin A<sub>1c</sub> GHQ

Analyte	Program Code	Challenges/Shipment
	GHQ	
Hemoglobin A <sub>1c</sub>	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey GH5 on page 63. For additional information about the CAP Quality Cross Check program, see page 42.

#### Program Information

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

## Endocrinology

### Quality Cross Check—Parathyroid Hormone PTHQ

Analyte	Program Code	Challenges/Shipment
	PTHQ	
Parathyroid hormone (PTH)	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey ING on page 86. For additional information about the CAP Quality Cross Check program, see page 42.

#### Program Information

- Three 5.0-mL lyophilized serum specimens in duplicate
- Report up to three instruments
- Two shipments per year

4

Quality Cross Check

World-class recognition  
deserves to be displayed.



Let your peers, patients, and the public know you've earned  
the CAP accreditation certification mark.

Proudly display the mark. It distinguishes you as one of almost 8,000 laboratories worldwide that have attained CAP accreditation, the most respected and recognized laboratory accreditation in the world.

## Blood Gas, Critical Care, and Oximetry

### Quality Cross Check—Blood Oximetry SOQ

Analyte	Program Code	Challenges/Shipment
	SOQ	
Carboxyhemoglobin	■	3
Hematocrit, estimated	■	3
Hemoglobin, total	■	3
Methemoglobin	■	3
Oxyhemoglobin	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey SO on page 94. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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/Shipment
	AQQ	AQ2Q	AQ3Q	AQ4Q	
Calcium, ionized	■	■	■	■	3
Chloride	■	■	■	■	3
Hematocrit	■	■	■	■	3
Hemoglobin, estimated	■	■	■	■	3
Lactate	■	■	■	■	3
Magnesium, ionized	■	■			3
PCO <sub>2</sub>	■	■	■	■	3
pH	■	■	■	■	3
PO <sub>2</sub>	■	■	■	■	3
Potassium	■	■	■	■	3
Sodium	■	■	■	■	3
tCO <sub>2</sub>	■	■	■	■	3
Creatinine		■		■	3
Glucose		■		■	3
Urea nitrogen (BUN)		■		■	3

These programs do not meet regulatory requirements for proficiency testing; see Surveys AQ and AQ2-AQ4 on page 92. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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 Series FH3Q, FH4Q, FH6Q, FH9Q

Analyte/Procedure	Program Code				Challenges/ Shipment
	FH3Q	FH4Q	FH6Q	FH9Q	
Hematocrit	■	■	■	■	3
Hemoglobin	■	■	■	■	3
Immature granulocyte parameter				■	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
White blood cell count	■	■	■	■	3
WBC differential	■	■	■	■	3

These programs do not meet regulatory requirements for proficiency testing; see the FH Series on page 135. For additional information about the CAP Quality Cross Check program, see page 42.

#### Program Information

- Three 2.5-mL whole blood specimens with pierceable caps
- Report up to three instruments
- For method compatibility, see instrument matrix on page 137
- Two shipments per year

4

Quality Cross Check

### Quality Cross Check—Reticulocyte RTQ, RT2Q, RT3Q, RT4Q

NEW

Instrument/Method	Program Code				Challenges/ Shipment
	RTQ	RT2Q	RT3Q	RT4Q	
Abbott Cell-Dyn 4000, Sapphire, Siemens ADVIA 120/2120, and all other automated and manual methods	■				3
Abbott Cell-Dyn 3200, 3500, 3700, Ruby		■			3
Coulter GenS, HmX, LH500, LH700 series, MAXM, STKS, Unicel DxH			■		3
Sysmex XE-2100, XE-2100C, XE-5000, XN Series, XT-2000i, XT-4000i				■	3

These programs do not meet regulatory requirements for proficiency testing; see the RT Series on page 139. For additional information about the CAP Quality Cross Check program, see page 42.

#### Program Information

- RTQ, RT2Q - 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

### Quality Cross Check—Urinalysis CMQ

Analyte	Program Code	Challenges/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 Surveys CMP and CMP1 on page 144. For additional information about the CAP Quality Cross Check program, see page 42.

#### Program Information

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

### Quality Cross Check—Occult Blood OCBQ

Analyte	Program Code	Challenges/Shipment
	OCBQ	
Occult blood	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey OCB on page 149. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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/ Shipment
	CGLQ	
Activated partial thromboplastin time	■	3
Fibrinogen	■	3
International normalized ratio (INR)	■	3
Prothrombin time	■	3
D-dimer	■	1
Fibrin(ogen) degradation products, plasma	■	1
Fibrin(ogen) degradation products, serum	■	1

This program does not meet regulatory requirements for proficiency testing; see Survey CGL on page 158. For additional information about the CAP Quality Cross Check program, see page 42.

### Program Information

- Three 1.0-mL lyophilized plasma specimens in triplicate, one 1.0-mL plasma specimen, 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

4

Quality Cross Check

Instrument/Cartridge	Program Code					Challenges/ Shipment
	CTQ	CT1Q	CT2Q	CT3Q	CT5Q	
Helena Actalyke®	■					3
Helena Cascade POC	■					3
IL Gem® PCL ACT				■		3
IL Gem PCL ACT-LR			■			3
IL GEM PCL Plus ACT				■		3
IL GEM PCL Plus ACT-LR			■			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, HMS Plus		■				3
Sienco Sonoclot®	■					3

These programs do not meet regulatory requirements for proficiency testing; see Surveys CT-CT3 and CT5 on page 162. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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

# 5

## Point-of-Care Programs



### The CAP broadens its network of laboratory experts through its collaborations.

Among the organizations we partner with:

- American Association for Clinical Chemistry (AACC)
- American College of Medical Genetics and Genomics (ACMG)
- Association for Molecular Pathology (AMP)
- National Society for Histotechnology (NSH)

## Point-of-Care Programs

POC Competency Challenges are designed to improve waived test results. These programs evaluate instrument and method performance, troubleshoot, assess staff competency, and provide information to train staff. 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/ 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/ Shipment
	POC6	POC7	POC8	POC9	
PT/INR, CoaguChek XS Plus and XS Pro Competency	■				10
Waived Chemistry, Glucose and HgB 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/ 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 (ten vials) and one 2.5-mL hematocrit/hemoglobin specimen (ten vials)
- POC11 - One abnormal 2.5-mL aqueous specimen (ten 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
- Programs provide material to test up to 10 staff
- Shipments available upon request

## Guide your point-of-care testing with confidence

### Point-of-Care Testing (POCT) Toolkit

POCT implementation requires a systematic approach that involves all stakeholders. This toolkit serves as a resource for any member of the POCT team who wants to learn about POCT or who has responsibility to guide or direct POCT. 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](http://ebooks.cap.org).



### POC Competency Challenges POC14, POC15, POC16

Program Name	Program Code			Challenges/ Shipment
	POC14	POC15	POC16	
Medtronic ACT/ACT, 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+
- Programs provide material to test up to five staff
- Shipments available upon request

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

Multiply inspector confidence in just 10 minutes with the CAP’s Fast Focus on Compliance mini-training vignettes. Using real world examples, inspectors will arm themselves with practical approaches to handle new and perplexing topics:

- Inspecting Personnel Records
- 12 Inspector Tools to Make Your Inspection Go More Smoothly
- Competency Assessment
- Identifying Systemic Issues—Critical Role of the Inspection Team Leader
- Documenting Your Inspection Findings
- IQCP—What It Means to the Inspector

Access these concentrated topics online by searching *Inspector Training* at [cap.org](http://cap.org).



# 6

## General Chemistry and Therapeutic Drug Monitoring



### Standardize hemoglobin A<sub>1c</sub> testing with our Hemoglobin A<sub>1c</sub> (GH2/GH5) Surveys.

- Mimic patient testing using specimens from human donors with levels that reflect clinical decision points.
- Ensure accuracy of testing—these Surveys are evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method targets.

### General Chemistry and Therapeutic Drug Monitoring

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### New Programs

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- TDM-Special Double Volume (ZZT)
- Urine Chemistry, Special (NVM)

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

Continued on the next page

\*General Chemistry and Therapeutic Drugs Surveys do not fulfill the CAP accreditation requirements for neonatal bilirubin proficiency testing. See Surveys NB, NB2 on page 65.

### 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 second instrument reporting options, see the Quality Cross Check program, CZQ, on page 59



## General Chemistry and Therapeutic Drugs

### C1, C3/C3X, C4, CZ/CZX/CZ2X, Z continued

Analyte	Program Code					Challenges/ Shipment
	C1	C3/C3X	C4	CZ/CZX/ CZ2X	Z	
T4, free (thyroxine, free)	■	■		■		5
T4, total (thyroxine, 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 <sub>2</sub> )	■	■	■	■		5
Ferritin		■		■		5
Gamma glutamyl transferase (GGT)	■	■		■		5
Iron binding capacity, total (measured)		■		■		5
Iron binding capacity, unsaturated (measured)		■		■		5
Iron saturation (%)		■		■		5
Lactate		■		■		5
Lipase		■		■		5
Osmolality		■		■		5
Phosphorus (inorganic)	■	■		■		5
Prealbumin		■		■		5
Transferrin		■		■		5
<b>Lithium</b>	■	■		■	■	5
Acetaminophen				■	■	5
Amikacin				■	■	5
Caffeine				■	■	5
<b>Carbamazepine</b>				■	■	5
Carbamazepine, free				■	■	5
<b>Digoxin</b>				■	■	5
Digoxin, free				■	■	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 second instrument reporting options, see the Quality Cross Check program, CZQ, on page 59



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

Analyte	Program Code					Challenges/ Shipment
	C1	C3/C3X	C4	CZ/CZX/ CZ2X	Z	
Disopyramide				■	■	5
<b>Ethosuximide</b>				■	■	5
<b>Gentamicin</b>				■	■	5
Lidocaine				■	■	5
Methotrexate				■	■	5
<b>N-acetylprocainamide (NAPA)</b>				■	■	5
<b>Phenobarbital</b>				■	■	5
<b>Phenytoin</b>				■	■	5
Phenytoin, free				■	■	5
<b>Primidone</b>				■	■	5
<b>Procainamide</b>				■	■	5
<b>Quinidine</b>				■	■	5
Salicylate				■	■	5
<b>Theophylline</b>				■	■	5
<b>Tobramycin</b>				■	■	5
<b>Valproic acid</b>				■	■	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 second instrument reporting options, see the Quality Cross Check program, CZQ, on page 59



## Quality Cross Check—Chemistry and Therapeutic Drug Monitoring CZQ

Analyte	Program Code	Challenges/Shipment
	CZQ	
See Survey CZ analytes on pages 56-58	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey CZ on pages 56-58. For additional information about the CAP Quality Cross Check program, see page 42.

### 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

## CAP/AACC Immunosuppressive Drugs CS

Analyte	Program Code	Challenges/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**

## Everolimus EV

Analyte	Program Code	Challenges/Shipment
	EV	
Everolimus	■	3

### Program Information

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

## Mycophenolic Acid MPA

Analyte	Program Code	Challenges/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/Shipment
	ZE	
Clozapine	■	3
Gabapentin	■	3
Lacosamide	■	3
Lamotrigine	■	3
Levetiracetam	■	3
Oxcarbazepine metabolite	■	3
Pregabalin <b>NEW</b>	■	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/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

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Each laboratory staff member should have their own profile. Your profile is transferrable when you leave your current position. Use it to maintain information about yourself, including:

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- Specialties and skills
- Contact preferences
- Addresses
- Inspector-related information

**To create or update your profile, visit [cap.org](http://cap.org), log in, and click on UPDATE MY PROFILE.**



### Accuracy-Based Lipids ABL

Analyte	Program Code	Challenges/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/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—BNP BNPQ

Analyte	Program Code	Challenges/Shipment
	BNPQ	
BNP	■	3
NT-proBNP	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey BNP or BNP5 above. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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

## Harmonized Thyroid ABTH

Analyte	Program Code	Challenges/Shipment
	ABTH	
T3, free (triiodothyronine, free)	■	3
T3, total (triiodothyronine, total)	■	3
T4, free (thyroxine, free)	■	3
T4, total (thyroxine, total)	■	3
Thyroid-stimulating hormone (TSH)	■	3

### Program Information

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

### Additional Information

- Analytes will be evaluated using harmonization.
- Specimens are collected by a modified application of Clinical Laboratory and 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*.

## Cardiac Markers CRT, CRTI, TNT, TNT5

Analyte	Program Code				Challenges/ Shipment
	CRT	CRTI	TNT	TNT5	
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, two challenges			■		2
Troponin T, five challenges				■	5

### Program Information

- CRT - Five 2.0-mL liquid serum specimens
- CRTI - Ten 2.0-mL liquid serum specimens
- TNT - Two 2.0-mL liquid serum specimens
- TNT5 - Five 2.0-mL liquid serum specimens
- Three shipments per year

The College of American Pathologists Accreditation Program requires all accredited laboratories performing non-waived testing for Troponin I and Troponin T to complete 15 PT challenges per year.



## Hemoglobin A<sub>1c</sub> GH2, GH5

Analyte	Challenges/Shipment	
	Program Code	
	GH2	GH5
Hemoglobin A <sub>1c</sub>	3	5

### Additional Information

- These Surveys will be evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method.
- The College of American Pathologists Accreditation Program requires all accredited laboratories performing non-waived testing for Hemoglobin A<sub>1c</sub> to complete 15 PT challenges per year.
- For second instrument reporting options, see the Quality Cross Check program, GHQ, below.

### 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<sub>1c</sub> GHQ

Analyte	Program Code	Challenges/Shipment
	GHQ	
Hemoglobin A <sub>1c</sub>	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey GH5 above. For additional information about the CAP Quality Cross Check program, see page 42.

### 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 liquid specimens in triplicate
- Report up to three instruments
- Two shipments per year

## Hemoglobin A<sub>1c</sub> GH5I

Analyte	Program Code	Challenges/Shipment
	GH5I	
Hemoglobin A <sub>1c</sub>	■	5

### Additional Information

- This program meets the CAP's Accreditation Program requirements for proficiency testing.
- This Survey will not be evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method. See Survey 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/Shipment
	GSA	
Glycated serum albumin	■	3

#### Program Information

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

### High-Sensitivity C-Reactive Protein HSCR

Analyte	Program Code	Challenges/Shipment
	HSCR	
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/Shipment
	HMS	
Homocysteine	■	3

#### Program Information

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

### Ketones KET

Analyte	Program Code	Challenges/Shipment
	KET	
Beta-hydroxybutyrate	■	2
Total ketones	■	2

#### Program Information

- Two 2.0-mL serum specimens
- For use with Acetest® and other qualitative/semi-quantitative methods using the nitroprusside reaction for total ketones testing
- Two shipments per year

### Chemistry—Limited, Waived LCW

Analyte	Program Code	Challenges/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/Shipment	
	Program Code	
	NB	NB2
Bilirubin, direct	2	2
<b>Bilirubin, total</b>	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/Shipment
	PCARM	PCARMX	
BNP	■	■	5
<b>CK-MB</b>	■	■	5
D-dimer	■	■	2
Myoglobin	■	■	2
Troponin I	■	■	5

The College of American Pathologists Accreditation Program requires 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
- PCARMX - All Survey PCARM specimens in duplicate
- For Point-of-Care instruments such as Alere Triage® and i-STAT
- Three shipments per year

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**Choose code CPIP/CPIP1 on your Surveys order form.**

### Whole Blood Chemistry Compatibility Matrix

Whole Blood Analyzer/Method	Analyte	Compatible Survey Programs	Page
Hemocue®	Glucose	HCC	66
Roche Reflotron®	Cholesterol	C1, C4	56-57
	Glucose		56-57
Cholestech LDX®	Total cholesterol	LCW	64
	HDL cholesterol		64
	Triglycerides		64
	Glucose		64
Whole blood cholesterol meters	Cholesterol	C1, C4, LCW	56-57, 64
Whole blood glucose meters	Glucose	HCC2, WBGQ	66, 67
Nova StatSensor®/ E-Z-EM EZ Chem™	Creatinine	WBCR	66

### Waived Combination HCC, HCC2

Analyte	Program Code		Challenges/Shipment
	HCC	HCC2	
Hematocrit		■	2
Hemoglobin	■	■	2
Urinalysis/Urine hCG		■	2
Whole blood glucose	■	■	2 (HCC)/3 (HCC2)

#### Program Information

- HCC - Two 1.0-mL whole blood specimens; two shipments per year
- 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 2.5-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/Shipment
	WBCR		
Creatinine	■		5

#### Program Information

- Five 4.0-mL whole blood specimens
- For use with the Nova StatSensor®/E-Z-EM EX Chem™
- Three shipments per year

## Quality Cross Check—Whole Blood Glucose WBGQ

Analyte	Program Code	Challenges/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.

### 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

- Three 2.0-mL whole blood specimens
- Report up to 30 instruments
- Two shipments per year



### Program Information

- Five 5.0-mL liquid serum specimens

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# 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/Shipment
	<b>U</b>	
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/Shipment
	<b>ABU</b>	
Calcium	■	3
Creatinine	■	3
Urine albumin, quantitative	■	3
Urine albumin: creatinine ratio	■	3

### Program Information

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

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/Shipment
	KSA	
Citrate	■	3
Cystine	■	3
Oxalate	■	3
Sulfate	■	3

#### Program Information

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

### Urine Chemistry—Special N, NX

Analyte	Program Code	Challenges/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 Survey N specimens in duplicate and three 10.0-mL liquid urine specimens
- Two shipments per year

### Myoglobin, Urine MYG

Analyte	Program Code	Challenges/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/Shipment
	UPBG	
Porphobilinogen	■	3

### Program Information

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

### 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	68

### Program Information

- Six 15.0-mL urine specimens

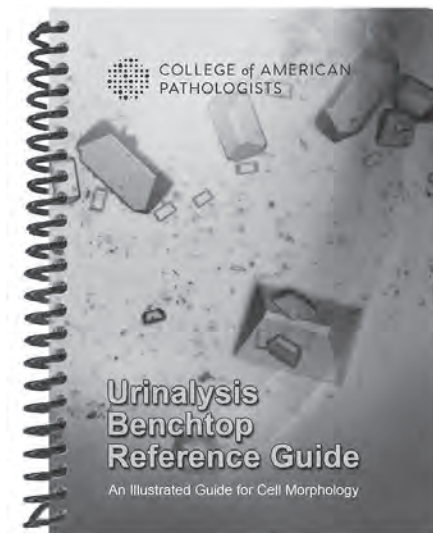
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## Special Chemistry

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/Shipment
	<b>AG</b>	
1,5-anhydroglucitol	■	3

#### Program Information

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

### Aldolase ADL

Analyte	Program Code	Challenges/Shipment
	<b>ADL</b>	
Aldolase	■	2

#### Program Information

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

### Angiotensin Converting Enzyme ACE

Analyte	Program Code	Challenges/Shipment
	<b>ACE</b>	
Angiotensin converting enzyme, quantitative	■	2

#### Program Information

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

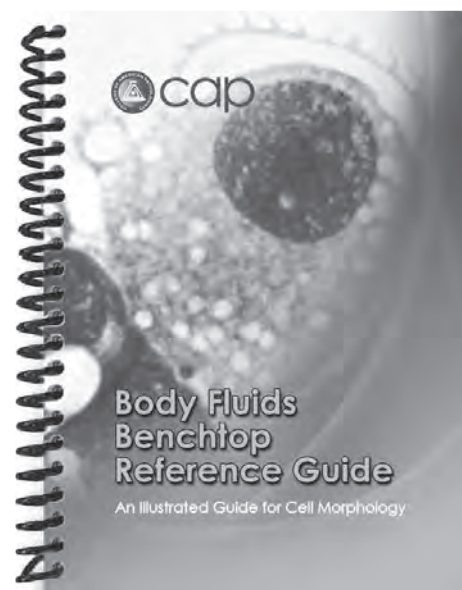
## Body Fluids Benchtop Reference Guide (BFBRG)

- 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"

**Choose code BFBRG on your Surveys order form.**

Or, view sample pages and order online:

- printed books at [estore.cap.org](http://estore.cap.org)
- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



## Body Fluid Chemistry FLD

Analyte	Program Code	Challenges/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 per year

### Program Information

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

### Additional Information

- For second instrument reporting options, see the Quality Cross Check program, FLDQ, on page 73.

## Approximately 40% of all CAP proficiency testing (PT) errors are clerical\*

Minimize your risk and treat PT more like a patient sample with automated PT reporting from e-LAB Solutions Connect:

- Eliminate errors from manual transcription, reducing PT failures
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Email us at [eLabConnect@cap.org](mailto:eLabConnect@cap.org) to get started.

\* Based on data received from the CAP's Laboratory Improvement Programs, 40% of all errors submitted are clerical.



### Quality Cross Check—Body Fluid Chemistry FLDQ

Analyte	Program Code	Challenges/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 Survey FLD on page 72. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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.

### Body Fluid Chemistry 2 FLD2

Analyte	Program Code	Challenges/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 specimens in duplicate
- Report up to three instruments
- Two shipments per year

#### 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/Shipment
	CD	
Beta-2-microglobulin, urine	■	3
Cadmium, urine	■	3
Cadmium, whole blood	■	3
Creatinine, urine	■	3

This Survey 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 13.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- Six shipments per year

## Cerebrospinal Fluid Chemistry M, OLI

Analyte	Program Code		Challenges/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 1.0-mL simulated liquid spinal fluid specimens and three paired serum specimens; one educational activity to calculate CSF IgG index and synthesis rate
- Two shipments per year



## Cystatin C CYS

Analyte	Program Code	Challenges/Shipment
	CYS	
Cystatin C	■	2

## Program Information

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

### Fecal Fat FCFS

Analyte	Program Code	Challenges/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/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/Shipment
	G6PDS	
G6PD, qualitative and quantitative	■	2

#### Program Information

- Two 0.5-mL lyophilized hemolysate samples
- Two shipments per year

### Lipoprotein-Associated Phospholipase A<sub>2</sub> PLA

Analyte	Program Code	Challenges/Shipment
	PLA	
Lipoprotein-associated phospholipase (Lp-PLA <sub>2</sub> ) concentration	■	2
Lipoprotein-associated phospholipase (Lp-PLA <sub>2</sub> ) 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/Shipment
	LPE	SPE	UBJP	
Lipoprotein electrophoresis	■			2
IgA, quantitation		■		2
IgG, quantitation		■		2
IgM, quantitation		■		2
M-protein (Paraprotein) identification		■		2
Protein, total		■		2
Protein electrophoresis		■		2
Protein electrophoresis pattern interpretation		■		2
Urine Bence Jones proteins			■	2

### Program Information

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



## Lamellar Body Count LBC

Procedure	Program Code		Challenges/Shipment
	LBC		
Lamellar body count	■		3

### Program Information

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

## Plasma Hemoglobin PHG

Analyte	Program Code		Challenges/Shipment
	PHG		
Plasma hemoglobin	■		2

### Program Information

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

### Procalcitonin PCT

Analyte	Program Code	Challenges/Shipment
	PCT	
Procalcitonin	■	3

#### Program Information

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

### Pseudocholesterase C7

Analyte	Program Code	Challenges/Shipment
	C7	
Pseudocholesterase	■	1

#### Program Information

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



### Salivary Cortisol SALC

Analyte	Program Code	Challenges/Shipment
	SALC	
Salivary cortisol	■	3

#### Program Information

- Three 1.0-mL synthetic oral fluid specimens
- Two shipments per year

### Accuracy-Based Testosterone, Estradiol ABS

Analyte	Program Code	Challenges/Shipment
	ABS	
Albumin	■	3
Calcium	■	3
Cortisol	■	3
Estradiol	■	3
Follicle-stimulating hormone (FSH) <b>NEW</b>	■	3
Luteinizing hormone (LH) <b>NEW</b>	■	3
Sex hormone-binding globulin (SHGB)	■	3
Testosterone	■	3
Testosterone, bioavailable	■	3
Testosterone, free	■	3
Thyroid-stimulating hormone (TSH)	■	3

#### Program Information

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

#### Additional Information

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

### Total Bile Acids TBLA

Analyte	Program Code	Challenges/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/Shipment
	R	
Aluminum	■	3
Chromium	■	3
Copper	■	3
Manganese	■	3
Selenium	■	3
Zinc	■	3

#### Program Information

- Three 5.0-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/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





**NEW****Trace Metals, Whole Blood TMWB**

Analyte	Program Code	Challenges/Shipment
	<b>TMWB</b>	
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
- Two shipments per year
- Designed for laboratories that monitor trace metals at normal and toxic levels

**Sweat Analysis Series SW1, SW2, SW3, SW4**

Analyte	Program Code	Challenges/Shipment
	<b>SW1, SW2, SW3, SW4</b>	
Chloride	■	3
Conductivity	■	3

**Program Information**

- Three 5.0-mL simulated liquid human sweat specimens
- Two shipments per year

For method compatibility, see chart below.

**Sweat Analysis Series Compatibility Matrix**

Method/Procedure	Program Code				Materials Included
	SW1	SW2	SW3	SW4	
Orion direct electrode	■				Precut 2-cm diameter Whatman filter papers
Wescor Macroduct™ and Nanoduct® Systems		■			22-gauge blunt-tipped needles
CF Indicator System®			■		Polystyrene boats and chloride-free sponges
All other methodologies				■	No additional materials provided

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### Viscosity V

Analyte	Program Code	Challenges/Shipment
	V	
Viscosity	■	2

#### Program Information

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

### Soluble Transferrin Receptor STFR

Analyte	Program Code	Challenges/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	74

#### Program Information

- Three 5.0-mL simulated liquid spinal fluid specimens

# 7 Endocrinology



## Ensure accuracy in your noninvasive prenatal testing with our new NIPT Survey.

- Mimics patient testing with maternal plasma specimens
- Offers compatibility across all major testing methods, including SNP, counting, targeted, and shotgun methods

### New Programs **NEW**

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Noninvasive Prenatal Testing (NIPT) .....	87
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# Endocrinology

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

## Ligand—General K, KK, K2

Analyte	Program Code		Challenges/Shipment
	K, KK	K2	
<b>Alpha-fetoprotein (AFP)</b>	■		5
CEA	■	■	3
<b>Cortisol</b>	■		5
Ferritin	■	■	3
Folate, serum	■	■	3
<b>hCG, quantitative</b>	■		5
<b>Immunoglobulin E (IgE)</b>	■		5
Prostate-specific antigen (PSA)	■	■	2 (K, KK)/3 (K2)
Prostate-specific antigen, complexed (cPSA)	■		2
Prostate-specific antigen, free	■		2
Prostatic acid phosphatase (PAP)	■		3
T3, free (triiodothyronine, free)	■		5
<b>T3, total (triiodothyronine, total)</b>	■		5
<b>T3 uptake and related tests</b>	■		5
<b>T4, free (thyroxine, free)</b>	■		5
<b>T4, total (thyroxine, total)</b>	■		5
<b>Thyroid-stimulating hormone (TSH)</b>	■		5
Vitamin B <sub>12</sub>	■	■	3

### Program Information

- K - Five 5.0-mL liquid serum specimens; three shipments per year
- KK - Five 5.0-mL liquid serum specimens in duplicate; three shipments per year
- K2 - Three 5.0-mL liquid serum specimens; two shipments per year

## B-Type Natriuretic Peptides BNP, BNP5

Analyte	Challenges/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—BNP BNPQ

Analyte	Program Code	Challenges/Shipment
BNP	■	3
NT-proBNP	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey BNP or BNP5 above. For additional information about the CAP Quality Cross Check program, see page 42.

### 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

## Ligand—Special Y, YY, DY

Analyte	Program Code		Challenges/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		■	3
Testosterone, free		■	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 Survey Y or YY
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year



## Antimüllerian Hormone AMH

Analyte	Program Code		Challenges/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/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/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



### Accuracy-Based Vitamin D ABVD

Analyte	Program Code	Challenges/Shipment
	ABVD	
25-OH vitamin D (D2 and D3)	■	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 Laboratory and 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/Shipment
	BU	
C-telopeptide (CTX)	■	2
Creatinine	■	2
Deoxypyridinoline (DPD)	■	2
N-telopeptide (NTx)	■	2
Pyridinoline (PYD)	■	2

#### Program Information

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



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

Analyte	Program Code						Challenges/ Shipment
	BMV1	BMV2	BMV3	BMV4	BMV5	BMV6	
1,25 dihydroxy vitamin D	■						3
Bone-specific alkaline phosphatase		■					3
Vitamin A			■				3
Vitamin E (alpha tocopherol, gamma tocopherol)				■			3
C-telopeptide					■		3
N-telopeptide						■	3

### Program Information

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

## Erythropoietin EPO

Analyte	Program Code	Challenges/Shipment
	EPO	
Erythropoietin	■	2

### Program Information

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



## Fetal Fibronectin FF

Analyte	Program Code	Challenges/Shipment
	FF	
Fetal fibronectin	■	2

### Program Information

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

## Insulin, Gastrin, C-Peptide, and PTH ING

Analyte	Program Code	Challenges/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





## Second Trimester Maternal Screening FP, FPX

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

The CAP designed this Survey for laboratories using AFP and hCG for prenatal screening purposes only. For all other applications, see Survey K or KK on page 82.

### Program Information

- FP - Five 1.0-mL liquid serum specimens; two 1.0-mL simulated amniotic fluid specimens
- FPX - All Survey FP serum specimens in duplicate; two 1.0-mL simulated amniotic fluid specimens
- Three shipments per year

## First Trimester Maternal Screening FP1T, FP1B

Analyte	Program Code		Challenges/Shipment
	FP1T	FP1B	
<b>Total hCG</b>	■		5
Free beta hCG		■	5
PAPP-A	■	■	5

The CAP designed these Surveys for laboratories using hCG for prenatal screening purposes only. For all other applications, see Survey K or KK on page 82.

### Program Information

- FP1T - Five 1.0-mL serum specimens
- FP1B - Five 1.0-mL serum specimens
- Three shipments per year

## Noninvasive Prenatal Testing NIPT

**NEW**

Analyte	Program Code		Challenges/Shipment
	NIPT		
Cell-free DNA screening for fetal aneuploidy	■		3

### Program Information

- Three maternal plasma samples
- Two shipments per year

## Quality Cross Check—Parathyroid Hormone PTHQ

Analyte	Program Code		Challenges/Shipment
	PTHQ		
Parathyroid hormone (PTH)	■		3

This program does not meet regulatory requirements for proficiency testing; see Survey ING on page 86. For additional information about the CAP Quality Cross Check program, see page 42.

### 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
- Two shipments per year

### Pharmacogenetics PGX, PGX1, PGX2, PGX3

Analyte/Procedure	Program Code				Challenges/ Shipment
	PGX	PGX1	PGX2	PGX3	
<i>CYP2C19</i>	■				3
<i>CYP2C9</i>	■				3
<i>CYP2D6</i>	■				3
<i>CYP3A4</i>	■				3
<i>CYP3A5</i>	■				3
<i>SLCO1B1</i> (rs4149056)	■				3
<i>VKORC1</i>	■				3
<i>IL28B</i> (rs12979860)		■			3
<i>HLA-B*15:02</i>			■		3
<i>HLA-B*57:01</i>			■		3
<i>DPYD</i>				■	3
<i>TPMT</i>				■	3
<i>UGT1A1</i>				■	3

#### Additional Information

- *UGT1A1* (PGX3 Survey) 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.
- Survey PGX2 is designed for laboratories that provide *HLA-B\*57:01* testing to identify risk of hypersensitivity to abacavir and *HLA-B\*15:02* testing to identify risk of hypersensitivity to carbamazepine. The intended response is qualitative (presence/absence of the allele). This Survey is not appropriate for laboratories that perform molecular HLA typing. For HLA typing proficiency testing, please consult the HLA Molecular Typing (DML) Survey.

#### Program Information

- Three 25.0-µg extracted DNA specimens
- Includes allele detection (genotyping) and/or interpretive challenges
- Two shipments per year

### RBC Folate FOL

Analyte	Program Code		Challenges/ 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/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



### Tumor Markers TM, TMX

Analyte	Program Code	Challenges/Shipment
	TM, TMX	
Adrenocorticotrophic 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 Survey TM specimens in duplicate
- Two shipments per year

### Human Epididymis Protein 4 HUEP

Analyte	Program Code	Challenges/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	82
Ligand—Special	YVM	Y	84

#### Program Information

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

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# 8

## Blood Gas, Critical Care, and Oximetry



### Our programs closely mimic patient testing to ensure accuracy in the laboratory.

- 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 your 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).

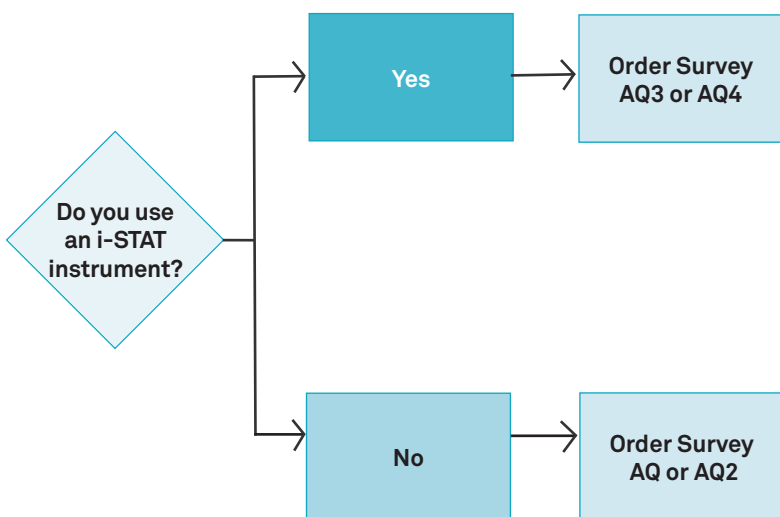
## Critical Care Blood Gas AQ, AQ2, AQ3, AQ4

Analyte	Program Code				Challenges/Shipment
	AQ	AQ2	AQ3	AQ4	
Calcium, ionized	■	■	■	■	2
<b>Chloride</b>	■	■	■	■	5
<b>Hematocrit</b>	■	■	■	■	5
<b>Hemoglobin, estimated</b>	■	■	■	■	5
Lactate	■	■	■	■	2
Magnesium, ionized	■	■			2
<b>PCO<sub>2</sub></b>	■	■	■	■	5
pH	■	■	■	■	5
<b>PO<sub>2</sub></b>	■	■	■	■	5
<b>Potassium</b>	■	■	■	■	5
<b>Sodium</b>	■	■	■	■	5
tCO <sub>2</sub>	■	■	■	■	5
<b>Creatinine</b>		■		■	5
<b>Glucose</b>		■		■	5
<b>Urea nitrogen (BUN)</b>		■		■	5

### Program Information

- 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

For second instrument reporting options, see the Quality Cross Check programs, AQQ, AQ2Q, AQ3Q, and AQ4Q, on page 93.



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

Analyte	Program Code				Challenges/Shipment
	AQQ	AQ2Q	AQ3Q	AQ4Q	
Calcium, ionized	■	■	■	■	3
Chloride	■	■	■	■	3
Hematocrit	■	■	■	■	3
Hemoglobin, estimated	■	■	■	■	3
Lactate	■	■	■	■	3
Magnesium, ionized	■	■			3
PCO <sub>2</sub>	■	■	■	■	3
pH	■	■	■	■	3
PO <sub>2</sub>	■	■	■	■	3
Potassium	■	■	■	■	3
Sodium	■	■	■	■	3
tCO <sub>2</sub>	■	■	■	■	3
Creatinine		■		■	3
Glucose		■		■	3
Urea nitrogen (BUN)		■		■	3

These programs do not meet regulatory requirements for proficiency testing; see Surveys AQ and AQ2-AQ4 on page 92. For additional information about the CAP Quality Cross Check program, see page 42.

### 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 S0

Analyte	Program Code	Challenges/Shipment
	S0	
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 Survey is not compatible with Oxicom-2000, -2100, or -3000 whole blood oximeters.
- For second instrument reporting options, see the Quality Cross Check program, SOQ, below.

### Quality Cross Check—Blood Oximetry SOQ

Analyte	Program Code	Challenges/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 Survey S0 above. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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



## Toxicology testing is changing at a rapid pace—so is our proficiency testing.

- The CAP's Toxicology Resource Committee annually reviews toxicology Survey compounds and modifies them in accordance with the appearance and prevalence of new drugs to stay contemporary.

### New Programs

**NEW**

Trace Metals, Whole Blood (TMWB).....	103
Toxicology Quality Program (TQP).....	108

*Delayed until 2019*

### New Analyte/Drug Additions

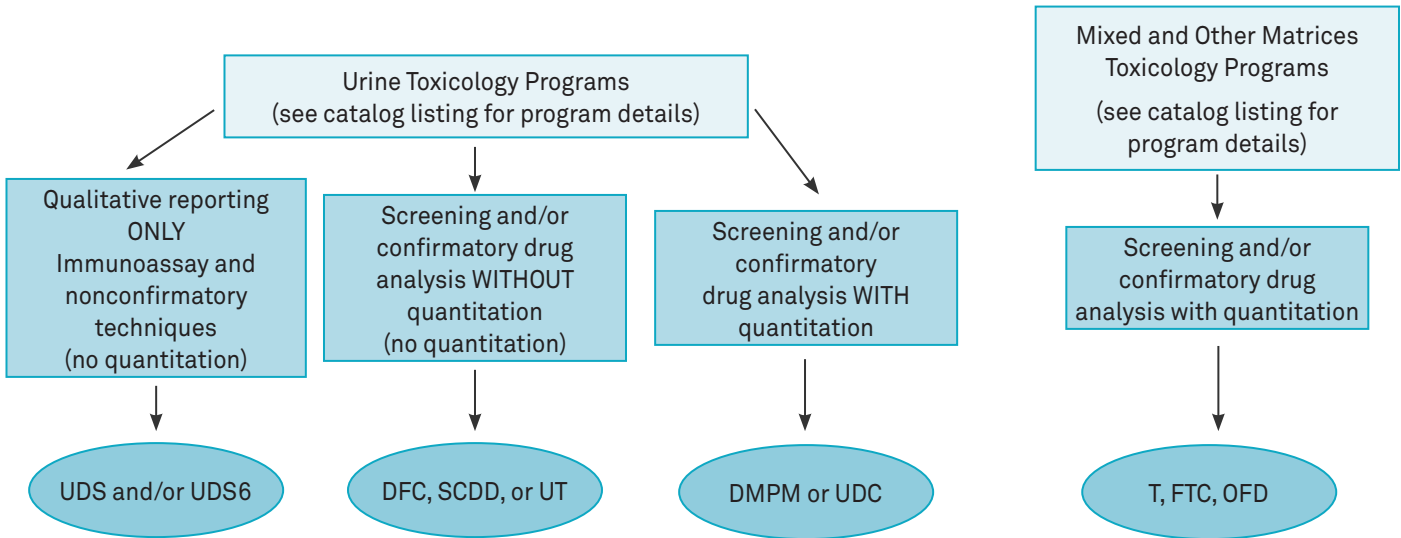
**NEW**

Drug Monitoring for Pain Management (DMPM) .....	106
Oral Fluid for Drugs of Abuse (OFD).....	100
Toxicology (T) .....	97
Urine Toxicology (UT).....	97

# 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 Surveys for your laboratory's testing menu.



Toxicology

Toxicology T		
Analyte	Program Code	Challenges/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/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)	Delta-9-THC (serum only)	Mephedrone	O-desmethyltramadol
7-aminoclonazepam	Delta-9-THC-COOH	Meprobamate	Olanzapine
7-aminoflunitrazepam	Desalkylflurazepam	Methadone	Opiate group
Acetaminophen	Desipramine	Methadone metabolite (EDDP)	Oxazepam
Alpha-hydroxyalprazolam	Desmethylclomipramine	Methamphetamine	Oxycodone
Alprazolam	Desmethylcyclobenzaprine*	Methylenedioxy- amphetamine (MDA)	Oxymorphone
Amitriptyline	Desmethylsertraline	Methylenedioxy- methamphetamine (MDMA)	Paroxetine
Amphetamine	Dextromethorphan	Methylenedioxy- pyrovalerone (MDPV)	Pentobarbital
Amphetamine group	Diazepam	Methylphenidate	Phencyclidine
Aripiprazole <b>NEW</b>	Dihydrocodeine	Metoprolol	Phenethylamine
Atenolol	Diltiazem	Mirtazapine	Pheniramine
Atropine	Diphenhydramine	Morphine	Phenobarbital
Barbiturate group	Doxepin	N-desmethyltramadol	Phentermine
Benzodiazepine group	Doxylamine	Naproxen	Phenylephrine
Benzoylcegonine	Duloxetine	Nicotine	Phenytoin
Brompheniramine	Ecgonine ethyl ester	Norbuprenorphine	Pregabalin <b>NEW</b>
Buprenorphine	Ecgonine methyl ester	Norchlordiazepoxide	Propoxyphene
Bupropion	Ephedrine	Norclomipramine	Propranolol
Butalbital	Fentanyl	Norcodeine	Pseudoephedrine
Cannabinoids	Flunitrazepam	Norcyclobenzaprine*	Quetiapine
Carbamazepine	Fluoxetine	Nordiazepam	Quinidine
Carbamazepine-10, 11-epoxide	Flurazepam	Nordoxepin	Quinine
Carisoprodol	Gabapentin <b>NEW</b>	Norfentanyl	Ranitidine
Chlordiazepoxide	Hydrocodone	Norfluoxetine	Salicylates
Chlorpheniramine	Hydromorphone	Norketamine	Sertraline
Citalopram	Hydroxyzine	Normeperidine	Strychnine
Clomipramine	Ibuprofen	Noroxycodone	Temazepam
Clonazepam	Imipramine	Norpropoxyphene	Topiramate <b>NEW</b>
Clozapine	Ketamine	Norsertaline	Tramadol
Cocaethylene	Lamotrigine	Nortrimipramine	Trazodone
Cocaine	Levetiracetam	Nortriptyline	Tricyclic group
Codeine	Lidocaine	Norverapamil	Trimipramine
Cotinine	Lorazepam		Valproic acid
Cyclobenzaprine	Lysergic acid diethylamide (LSD)		Venlafaxine
	Meperidine		Verapamil
			Zolpidem

\*Same compound

## CAP/AACC Urine Drug Testing, Screening UDS, UDS6

Analyte	Program Code	
	Challenges/Shipment	
	UDS	UDS6 Limited
Acetaminophen	5	3
Amphetamine	5	3
Amphetamine/methamphetamine group	5	3
Barbiturate group	5	3
Benzodiazepine group	5	3
Benzoylcegonine/cocaine metabolites	5	3
Buprenorphine and metabolites	5	3
Delta-9-THC-COOH	5	3
Ethanol	5	3
Fentanyl	5	3
Lysergic acid diethylamide (LSD)	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
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	
	DAI	Challenges/Shipment
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

## CAP/AACC Forensic Urine Drug Testing, Confirmatory UDC

Analyte	Program Code	Challenges/Shipment
	UDC	
6-acetylmorphine (6-AM)	■	10
Alpha-hydroxyalprazolam	■	10
Amphetamine	■	10
Benzoyllecgonine	■	10
Buprenorphine	■	10
Butalbital	■	10
Codeine	■	10
Delta-9-THC-COOH	■	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
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/Shipment
	OFD	
Amphetamine Group	■	5
Amphetamine	■	5
Methamphetamine	■	5
Methylenedioxyamphetamine (MDA)	■	5
Methylenedioxyethylamphetamine (MDEA)	■	5
Methylenedioxymethamphetamine (MDMA)	■	5
Benzodiazepine Group	■	5
Alprazolam <b>NEW</b>	■	5
Diazepam	■	5
Nordiazepam	■	5
Oxazepam <b>NEW</b>	■	5
Temazepam	■	5
Buprenorphine <b>NEW</b>	■	5
Buprenorphine and norbuprenorphine <b>NEW</b>	■	5
Cocaine and/or metabolite	■	5
Benzoyllecgonine	■	5
Cocaine	■	5
Cannabinoids	■	5
Delta-9-THC	■	5
Delta-9-THC-COOH <b>NEW</b>	■	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/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/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/Shipment
	AL1* Whole Blood	AL2 Serum	
Acetone, quantitative	■	■	5
<b>Ethanol, quantitative</b>	■	■	5
Ethylene glycol, qualitative and quantitative	■	■	5
Isopropanol, quantitative	■	■	5
Methanol, quantitative	■	■	5

\*The American Society of Crime Laboratory Directors/Laboratory Accreditation Board Proficiency Review Committee (ASCLD/LAB PRC) has approved Survey AL1.

#### 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



### Ethanol Biomarkers ETB

Analyte	Program Code	Challenges/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/Shipment
	BL	
Lead	■	5

This Survey 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



### Cadmium CD

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

This Survey 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 13.0-mL urine specimens
- Conventional and International System of Units (SI) reporting offered
- Six shipments per year

### Nicotine and Tobacco Alkaloids NTA

Analyte	Program Code	Challenges/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, Urine TMU

Analyte	Program Code	Challenges/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

**NEW**

Analyte	Program Code	Challenges/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
- Two shipments per year
- Designed for laboratories that monitor trace metals at normal and toxic levels

## Forensic Toxicology, Criminalistics FTC

Analyte	Program Code	Challenges/Shipment
	FTC	
See drug listing below	■	4

The American Society of Crime Laboratory Directors/Laboratory Accreditation Board Proficiency Review Committee (ASCLD/LAB PRC) has approved Survey FTC.

### Program Information

- Three 20.0-mL whole blood specimens and one 20.0-mL synthetic urine specimen
- For crime and hospital laboratories that have forensic toxicology divisions performing qualitative and quantitative analysis of drugs in whole blood specimens along with a urine qualitative challenge
- Two shipments per year

## FTC Program Drug Listing

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

6-acetylmorphine (6-AM)	Ecgonine ethyl ester	Norfluoxetine
7-aminoclonazepam	Ecgonine methyl ester	Norketamine
7-aminoflunitrazepam	Ephedrine	Norpropoxyphene
Acetaminophen	Fentanyl*	Norsertaline
Alpha-hydroxyalprazolam	Fluoxetine	Nortriptyline
Alprazolam	Flurazepam*	Oxazepam
Amitriptyline	Gamma-hydroxybutyrate (GHB)	Oxycodone
Amphetamine	Hydrocodone	Oxymorphone
Benzoyllecgonine	Hydromorphone	Paroxetine
Brompheniramine	Imipramine	Phencyclidine
Butalbital	Ketamine	Phenethylamine
Carisoprodol	Lorazepam	Phenobarbital
Chlorpheniramine	Lysergic acid diethylamide (LSD)	Phentermine
Clonazepam	Meperidine*	Phenytoin
Cocaethylene	Meprobamate	Propoxyphene
Cocaine	Methadone	Pseudoephedrine
Codeine	Methadone metabolite (EDDP)	Salicylate
Cyclobenzaprine*	Methamphetamine	Secobarbital
Delta-9-THC	Methylenedioxyamphetamine (MDA)	Sertraline
Delta-9-THC-COOH	Methylenedioxymethamphetamine (MDMA)	Temazepam
Desipramine	Morphine*	Tramadol*
Desmethylcyclobenzaprine	N-desmethyltramadol	Trazodone
Dextromethorphan	Nordiazepam	Zolpidem
Diazepam	Nordoxepin	
Diphenhydramine	Norfentanyl	
Doxepin		*and/or metabolite(s)

## Synthetic Cannabinoid/Designer Drugs SCDD

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

### Additional Information

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 20.0-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](http://cap.org). Click on Catalog and Shipping Information. The list is located under the PT Order Supplements header.

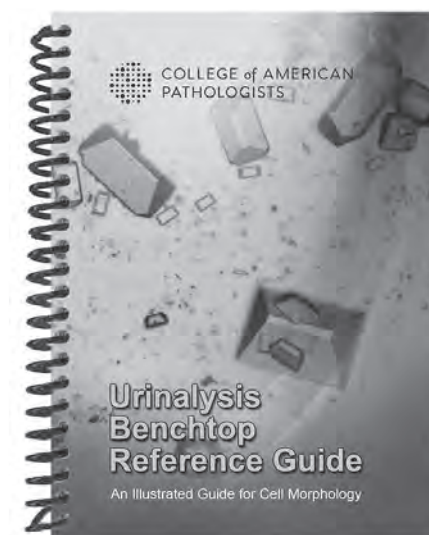
## Urinalysis Benchtop Reference Guide (UABRG)

- 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" by 6½"

**Choose code UABRG on your Surveys order form.**

Or, view sample pages and order online:

- printed books at [estore.cap.org](http://estore.cap.org)
- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



## Drug Monitoring for Pain Management DMPM

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

## Drug-Facilitated Crime DFC

Analyte	Program Code	Challenges/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 Surveys
- Two shipments per year



## DFC Program Drug Listing

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

4-hydroxytriazolam	Fentanyl	Norsertaline
7-aminoclonazepam	Fluoxetine	Nortriptyline
7-aminoflunitazepam	Gamma hydroxybutyrate (GHB)	Oxazepam
alpha-hydroxyalprazolam	Hydrocodone	Oxycodone
Amitriptyline	Hydromorphone	Oxymorphone
Amobarbital	Imipramine	Paroxetine
Amphetamine	Ketamine	Pentobarbital
Benzoylecgonine	Lorazepam	Phencyclidine (PCP)
Brompheniramine	Meperidine	Phenobarbital
Butalbital	Meprobamate	Phenytoin
Carisoprodol	Methadone	Propoxyphene
Chlorpheniramine	Methadone metabolite (EDDP)	Scopolamine
Citalopram/escitalopram	Methamphetamine	Secobarbital
Clonidine	Methylenedioxyamphetamine (MDA)	Sertraline
Codeine	Methylenedioxymethamphetamine (MDMA)	Temazepam
Cyclobenzaprine	Morphine	Tetrahydrozoline
Delta-9-THC-COOH	Nordoxepin	Tramadol
Desipramine	Norfluoxetine	Valproic Acid
Dextromethorphan	Norketamine	Zaleplon
Diphenhydramine	Normeperidine	Ziprasidone
Doxepin	Norpropoxyphene	Zolpidem
Doxylamine		Zopiclone/Eszopiclone

**NEW**

**Toxicology Quality Program TQP**

Analyte	Program Code	Challenges/Shipment
	TQP	
Amphetamine group	■	8
Benzodiazepine group	■	8
Opiate group	■	8

**Program Information**

- Eight 10.0-mL liquid urine specimens
- One shipment per year
- Monitor drug immunoassay performance characteristics on drug cross-reactivity

This program will provide specimens with clinically relevant drug concentrations for testing across various assay manufacturers' kits, including Abbott, Beckman Coulter, Roche, Siemens, Ortho Clinical Diagnostics, and Thermo Fisher Scientific.

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

Use the same material that is sent in the Surveys program. 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, Screen	UDSM	UDS	98

**Program Information**

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

Toxicology

**Find a practical guide to toxicology laboratory operations with this resource**

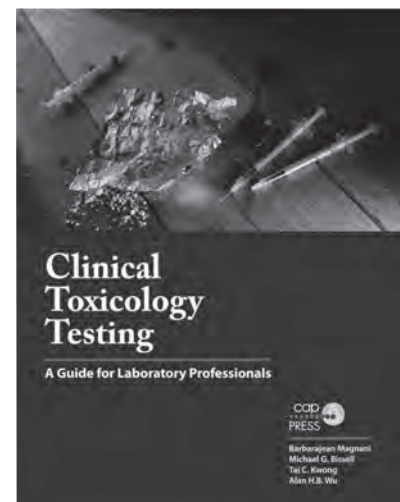
***Clinical Toxicology Testing  
A Guide for Laboratory Professionals***

Complex issues face the laboratory director or pathologist who offers toxicology services. This thorough reference book will guide both experienced physicians and those in training through the pharmacological principles, testing menus, and methodologies for toxicology testing.

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**Item number: PUB220**  
Softcover; 304 pages; 2012

# 10 Accuracy-Based Programs



## Be confident of the accuracy of your results.

- Specimens in the Accuracy-Based Surveys are matrix-effect free and have target values that are traceable to certified reference materials.
- Grading is independent of instrument peer groups, allowing health care systems to compare performance of multiple instrument systems across sites.

## Accuracy-Based Programs

Accuracy-Based Programs.....	110
Validated Materials.....	114

## New Analyte/Drug Additions **NEW**

Accuracy-Based Testosterone, Estradiol (ABS).....	111
Follicle-stimulating hormone (FSH)	
Luteinizing hormone (LH)	
Creatinine Accuracy CVL (LN24).....	112
Estimated glomerular filtration rate (eGFR)	

## 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/Shipment
	<b>ABL</b>	
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/Shipment
	<b>ABVD</b>	
25-OH vitamin D (D2 and D3)	■	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 Laboratory and 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/Shipment
	ABS	
Albumin	■	3
Calcium	■	3
Cortisol	■	3
Estradiol	■	3
Follicle-stimulating hormone (FSH) <b>NEW</b>	■	3
Luteinizing hormone (LH) <b>NEW</b>	■	3
Sex hormone-binding globulin (SHGB)	■	3
Testosterone	■	3
Testosterone, bioavailable	■	3
Testosterone, free	■	3
Thyroid-stimulating hormone (TSH)	■	3

### Additional Information

- 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/Shipment
	ABU	
Calcium	■	3
Creatinine	■	3
Urine albumin, quantitative	■	3
Urine albumin: creatinine ratio	■	3

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) <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">NEW</span>	■	

LN Express service is available.

### Additional Information

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
- Two shipments per year

## Harmonized Thyroid ABTH

Analyte	Program Code	Challenges/Shipment
	ABTH	
T3, free (triiodothyronine, free)	■	3
T3, total (triiodothyronine, total)	■	3
T4, free (thyroxine, free)	■	3
T4, total (thyroxine, total)	■	3
Thyroid-stimulating hormone (TSH)	■	3

### Additional Information

- Analytes will be evaluated using harmonization.
- Specimens are collected by a modified application of Clinical Laboratory and 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 specimens
- Two shipments per year

## Hemoglobin A<sub>1c</sub> Accuracy Calibration Verification/Linearity LN15

Analyte	Program Code	
	LN15	LN15 Target Range
Hemoglobin A <sub>1c</sub>	■	5%–12%

CAP-assigned target values derived from Hemoglobin A<sub>1c</sub> measurements assayed by National Glycohemoglobin Standardization Program (NGSP) secondary reference laboratories.

LN Express service is available.

### Program Information

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

## Hemoglobin A<sub>1c</sub> GH2, GH5

Analyte	Challenges/Shipment	
	Program Code	
	GH2	GH5
Hemoglobin A <sub>1c</sub>	3	5

### Additional Information

- These Surveys will be evaluated against the National Glycohemoglobin Standardization Program (NGSP) reference method.
- The College of American Pathologists Accreditation Program requires all accredited laboratories performing non-waived testing for Hemoglobin A<sub>1c</sub> to complete 15 PT challenges per year.
- For second instrument reporting options, see the Quality Cross Check program, GHQ, on page 63.

### 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

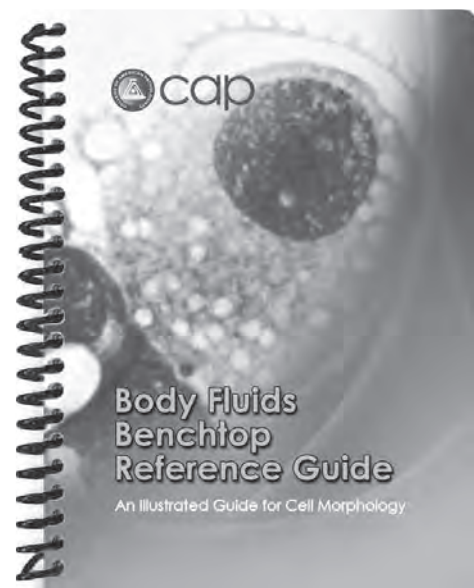
## Body Fluids Benchtop Reference Guide (BFBRG)

- 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"

**Choose code BFBRG on your Surveys order form.**

Or, view sample pages and order online:

- printed books at [estore.cap.org](http://estore.cap.org)
- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



## 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
Chemistry and Therapeutic Drugs	CZVM	CZ	56-58
Cerebrospinal Fluid	MVM	M	74
Urine Chemistry—General	UVM	U	68

### Coagulation—Limited, Validated Material

Validated Material	Validated Material Code	Corresponding Survey	Page
Coagulation—Limited	CGM	CGL	158

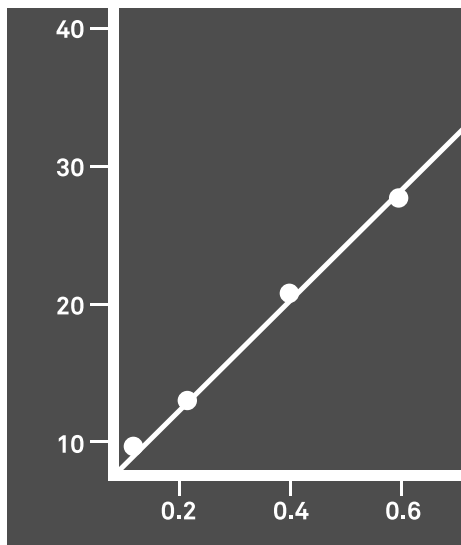
### Endocrinology—Validated Materials

Validated Material	Validated Material Code	Corresponding Survey	Page
Ligand Assay—General	KVM	K	82
Ligand—Special	YVM	Y	84

### Toxicology, Validated Material

Validated Material	Validated Material Code	Corresponding Survey	Page
Urine Drug Testing, Screen	UDSM	UDS	98

# 11 Instrumentation Validation Tools



## Simplify your workflow with the most comprehensive solution for calibration verification and linearity.

- Ensure confidence in your linearity results with 5–8 specimen levels included with each CVL program.
- Receive a customized report with the most rigorous statistical analysis.
- Expedite linearity evaluations through our *LN Express<sup>SM</sup>* Service.

## Instrumentation Validation Tools

Calibration Verification/Linearity .....	116
Instrumentation Quality Management Programs.....	129

## New Analyte/Drug Additions **NEW**

Creatinine Accuracy CVL (LN24) .....	125
Estimated glomerular filtration rate (eGFR)	

## Program Changes

High-Sensitivity C-Reactive Protein CVL (LN21) .....	124
New target range	

## Discontinued Programs

Whole Blood Ethanol Calibration Verification/Linearity (LN14)	
Calibration Verification/Linearity, Validated Materials (LN2VM, LN2VM1, LDM, LLM, LUM)	

# Calibration Verification/Linearity

## The CAP CVL program

Our program will help you meet CLIA regulations and CAP Laboratory Accreditation Program requirements for calibration verification and analytical measurement range (AMR) verification under 42 CFR493.1255(b)(3) for most analytes. In addition, you will receive a linearity assessment to help identify instrument/method performance issues before they can affect your patient results.

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
  - Result form
  - 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
    - Receive your linearity evaluations through *LN Express*<sup>SM</sup>, our expedited delivery service, within two business days for select CVL programs by logging in to 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 in to 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 Survey	Page No.
LN2 - Chemistry, Lipid, Enzyme CVL	118	C1, C3/C3X, C4, CZ/CZX/CZ2X	56-58
LN2BV - Chemistry, Lipid, Enzyme all Beckman (except AU), Vitros CVL	118		
LN3 - Therapeutic Drug Monitoring CVL	119	CZ/CZX/CZ2X/Z	56-58
LN5 - Ligand CVL	119-120	K/KK	82
LN5S - Ligand all Siemens ADVIA (Centaur, CP, and XP) CVL	119-120		
LN6 - Urine Chemistry CVL	120	U	68
LN7 - Immunology CVL	121	IG/IGX	202
LN8 - Reproductive Endocrinology CVL	121	Y/YY	84
LN9 - Hematology CVL	121	FH series, HE series	135, 134
LN11 - Serum Ethanol CVL	122	AL2	101
LN12 - C-Reactive Protein CVL	122	CRP	202
LN12E - C-Reactive Protein, Extended CVL	122		
LN13, LN13C - Blood Gas/Critical Care CVL	122-123	AQ, AQ2, AQ3, AQ4	92
LN15 - Hemoglobin A <sub>1c</sub> Accuracy CVL	123	GH2, GH5	63
LN16 - Homocysteine CVL	123	HMS	64
LN17 - Whole Blood Glucose CVL	123		
LN18, LN19 - Reticulocyte CVL	124	RT, RT2, RT3, RT4	139
LN20 - Urine Albumin CVL	124	U	68
LN21 - High-Sensitivity C-Reactive Protein CVL	124	HSCRP	64
LN22 - Flow Cytometry CVL	124	FL	209
LN23 - Prostate-Specific Antigen CVL	125	K/KK	82
LN24 - Creatinine Accuracy CVL	125	C1, C3/C3X, C4, CZ/CZX/CZ2X	56-58
LN25, LN27 - Troponin I and T CVL	125	CRT, CRTI, TNT	62
LN30 - B-Type Natriuretic Peptides CVL	125	BNP	61
LN31 - Immunosuppressive Drugs CVL	126	CS	59
LN32 - Ammonia CVL	126	C1, C3/C3X, CZ/CZX/CZ2X	56-58
LN33 - Serum Myoglobin CVL	126	CRT, CRTI	62
LN34 - Tumor Markers CVL	126	TM/TMX	89
LN35 - Thrombophilia CVL	127	CGS2	160
LN36 - Heparin CVL	127	CGS4	160
LN37 - von Willebrand Factor Antigen CVL	127	CGS3	160
LN38 - CMV Viral Load CVL	127	VLS, VLS2	193
LN39 - HIV Viral Load CVL	127	HIVG, HV2	193
LN40 - Vitamin D CVL	127	VITD	84
LN41 - Procalcitonin CVL	128	PCT	77
LN42 - D-Dimer CVL	128	CGL, CGDF	158
LN43 - Lamellar Body Count CVL	128	LBC	149
LN44 - Fibrinogen CVL	128	CGL	158
LN45 - HCV Viral Load CVL	127	HCV2	193

All CVL Surveys 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	LN2BV			Units
		LN2 (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 <sub>2</sub>	■		7–40		mmol/L
Creatinine	■		0.3–32.0		mg/dL
Glucose	■		20–780		mg/dL
Iron	■		10–950		µg/dL
Magnesium	■		0.3–10.0		mg/dL
Osmolality	■		200–600		mOsm/kg H <sub>2</sub> O
Phosphorus	■		0.5–20.0		mg/dL
Potassium	■		1.5–13.0		mmol/L
Protein	■		1.5–10.0		g/dL
Sodium	■		90–215		mmol/L
Urea nitrogen/Urea	■		3–190		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

LN Express service is available.

### 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
- 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	■	20–450 µg/mL
Amikacin	■	2–45 µg/mL
Carbamazepine	■	2–18 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
N-acetylprocainamide (NAPA)	■	2–25 µg/mL
Phenobarbital	■	8–70 µg/mL
Phenytoin	■	5–35 µg/mL
Primidone	■	1–22 µg/mL
Procainamide	■	2–18 µg/mL
Quinidine	■	0.4–7.0 µg/mL
Salicylate	■	7–90 mg/dL
Theophylline	■	5–35 µg/mL
Tobramycin	■	1–12 µg/mL
Valproic acid	■	15–140 µg/mL
Vancomycin	■	7–90 µg/mL

LN Express service is available.

#### Program Information

- Six 4.0-mL liquid serum specimens
- A seventh 4.0-mL liquid serum specimen for acetaminophen and vancomycin
- 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	
T3, total (triiodothyronine)	■	0.5–7.0 ng/mL	
T4, total (thyroxine)	■	1–80 µg/dL	

Continued on the next page

#### Program Information

- LN5 - Eight 4.0-mL liquid serum specimens; appropriate for most major instruments except Siemens ADVIA Centaur, XP, and CP users
- LN5S - Thirteen 4.0-mL liquid serum specimens; appropriate for Siemens ADVIA Centaur, XP, and CP users
- 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.

### Ligand Calibration Verification/Linearity LN5, LN5S continued

Analyte	Program Code	Target Ranges	
		LN5 Target Ranges	LN5S Target Ranges
Thyroid-stimulating hormone (TSH)	■	0.01–100 µIU/mL	
Vitamin B <sub>12</sub>	■	100–2,200 pg/mL	

\*The LN5S CVL will allow Siemens ADVIA Centaur users to report other major instruments for analytes other than CEA, if needed.

LN Express service is available.

#### Program Information

- LN5 - Eight 4.0-mL liquid serum specimens; appropriate for most major instruments except Siemens ADVIA Centaur, XP, and CP users
- LN5S - Thirteen 4.0-mL liquid serum specimens; appropriate for Siemens ADVIA Centaur, XP, and CP users
- Two shipments per year

### Urine Chemistry Calibration Verification/Linearity LN6

Analyte	Program Code	LN6 Target Ranges
Amylase	■	40–1,500 U/L
Calcium	■	5–30 mg/dL
Chloride	■	20–330 mmol/L
Creatinine	■	20–460 mg/dL
Glucose	■	25–640 mg/dL
Osmolality	■	30–1,800 mOsm/kg H <sub>2</sub> O
Phosphorus	■	15–200 mg/dL
Potassium	■	7–225 mmol/L
Protein, total	■	10–235 mg/dL
Sodium	■	20–340 mmol/L
Urea nitrogen/Urea	■	20–2,000 mg/dL
Uric acid	■	6–150 mg/dL

LN Express service is available.

#### Program Information

- Eighteen 4.0-mL liquid urine 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.

### Immunology Calibration Verification/Linearity LN7

Analyte	Program Code	
	LN7	LN7 Target Ranges
Alpha-1-antitrypsin	■	25–616 mg/dL
Complement C3	■	21–420 mg/dL
Complement C4	■	5–100 mg/dL
IgA	■	32–650 mg/dL
IgG	■	150–3,000 mg/dL
IgM	■	25–450 mg/dL
Transferrin	■	38–950 mg/dL

LN Express service is available.

#### Program Information

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

### 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

LN Express service is available.

#### Program Information

- Seven 4.0-mL liquid serum specimens
- Two shipments per year

### Hematology Calibration Verification/Linearity LN9

Analyte	Program Code	
	LN9	LN9 Target Ranges
Hemoglobin	■	1.5–24.0 g/dL
Platelet count	■	10–2,500 x 10 <sup>9</sup> /L
RBC count	■	0.5–8.00 x 10 <sup>12</sup> /L
WBC count	■	0.5–350.0 x 10 <sup>9</sup> /L

LN Express service is available.

#### Program Information

- Twenty 3.0-mL liquid 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.

## Serum Ethanol Calibration Verification/Linearity LN11

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

LN Express service is available.

### Program Information

- Seven 3.0-mL liquid serum specimens
- Two shipments per year

## C-Reactive Protein; C-Reactive Protein, Extended Calibration Verification/Linearity LN12, LN12E

Analyte	Program Code		Program Code	
	LN12	LN12 Target Range	LN12E	LN12E Target Range
C-reactive protein	■	5–110 mg/L	■	6–320 mg/L

LN Express service is available.

Not appropriate for reporting high-sensitivity C-reactive protein (hsCRP). For reporting hsCRP, use LN21 on page 124.

### Program Information

- LN12 - Five 1.0-mL liquid serum specimens; appropriate for Beckman Immage, Siemens Dimension, and Vitros instruments
- LN12E - Six 1.0-mL liquid serum specimens; appropriate for Abbott Architect, Beckman (except Immage), Roche, and Siemens (except Dimension) instruments
- Select program based on appropriate target range for assay used
- 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 <sub>2</sub>	■	12–91 mm Hg	■	12–91 mm Hg
pH	■	6.83–7.82	■	6.83–7.82
PO <sub>2</sub>	■	18–490 mm Hg	■	18–490 mm Hg
Calcium, ionized			■	0.15–3.3 mmol/L
Chloride			■	62–148 mmol/L
Glucose			■	10–465 mg/dL
Lactate			■	0.2–18 mmol/L

Continued on the next page

### Program Information

- Ten 2.5-mL ampules of aqueous 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.

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

Analyte	Program Code	Program Code	Program Code
	LN13	LN13C	LN13C
	LN13 Target Ranges	LN13C	LN13C Target Ranges
Potassium		■	0.5–10.7 mmol/L
Sodium		■	83–172 mmol/L

#### Program Information

- Ten 2.5-mL ampules of aqueous specimens
- Two shipments per year

### Hemoglobin A<sub>1c</sub> Accuracy Calibration Verification/Linearity LN15

Analyte	Program Code	Program Code
	LN15	LN15 Target Range
Hemoglobin A <sub>1c</sub>	■	5%–12%

CAP-assigned target values derived from Hemoglobin A<sub>1c</sub> measurements assayed by National Glycohemoglobin Standardization Program (NGSP) secondary reference laboratories.

LN Express service is available.

#### Program Information

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

### Homocysteine Calibration Verification/Linearity LN16

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

LN Express service is available.

#### Program Information

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

### Whole Blood Glucose Calibration Verification/Linearity LN17

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

LN Express service is available.

#### Program Information

- Five 2.0-mL liquid whole blood specimens
- Report up to 10 different ancillary testing sites or instruments
- 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.

### Reticulocyte Calibration Verification/Linearity LN18, LN19

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

LN Express service is available.

#### 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
- Two shipments per year

### Urine Albumin Calibration Verification/Linearity LN20

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

#### Program Information

- Six 5.0-mL urine specimens
- Two shipments per year

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

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

LN Express service is available.

#### 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 Target Ranges
	LN22	
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

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.

### 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
- 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) <b>NEW</b>	■	

#### Program Information

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

LN Express service is available.

#### Additional Information

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.

### 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			■	0.1–27.00 ng/mL

#### Program Information

- LN25 - Seven 2.0-mL liquid serum specimens
- LN27 - Six 2.0-mL liquid serum specimens
- Two shipments per year

### B-Type Natriuretic Peptides Calibration Verification/Linearity LN30

Analyte	Program Code	
	LN30	LN30 Target Ranges
BNP	■	30–6,500 pg/mL
NT-proBNP	■	50–50,000 pg/mL

#### Program Information

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

LN Express service is available.

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

#### Program Information

- Seven 2.0-mL liquid whole blood hemolysate specimens
- Two shipments per year

### Ammonia Calibration Verification/Linearity LN32

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

LN Express service is available.

#### Program Information

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

### Serum Myoglobin Calibration Verification/Linearity LN33

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

LN Express service is available.

#### Program Information

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

### 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

LN Express service is available.

#### Program Information

- Seven 3.0-mL liquid 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.



### Coagulation Calibration Verification/Linearity LN35, LN36, LN37

Analyte	Program Code			Target Ranges
	LN35	LN36	LN37	
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.

LN Express service is available.

#### 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

### Viral Load Calibration Verification/Linearity LN38, LN39, LN45

Analyte	Program Code			Target Ranges
	LN38*	LN39	LN45	
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 Survey LN38.

LN Express service is available.

#### 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 plasma 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		Target Range
	LN40		
25-OH vitamin D, total	■		4–120 ng/mL

LN Express service is available.

#### Program Information

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



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.

### Procalcitonin Calibration Verification/Linearity LN41

Analyte	Program Code	Target Range
	LN41	
Procalcitonin	■	0.3–190 ng/mL

LN Express service is available.

#### Program Information

- Six 1.0-mL frozen serum specimens
- Two shipments per year; ships on dry ice

### D-Dimer Calibration Verification/Linearity LN42

Analyte	Program Code	Target Range
	LN42	
D-dimer	■	220–5,500 ng/mL FEU

LN Express service is available.

#### Program Information

- Six 1.0-mL plasma specimens
- Two shipments per year



### Lamellar Body Count Calibration Verification/Linearity LN43

Analyte	Program Code	Target Range
	LN43	
Lamellar body count	■	5–200 particles x 10 <sup>9</sup> /L

LN Express service is available.

#### Program Information

- Six 2.0-mL simulated liquid amniotic fluid specimens
- For use with lamellar body count methods performed on hematology analyzers
- Two shipments per year

### Fibrinogen Calibration Verification/Linearity LN44

Analyte	Program Code	Target Range
	LN44	
Fibrinogen	■	80–900 mg/dL

LN Express service is available.

#### Program Information

- Six 1.0-mL frozen plasma specimens
- Two shipments per year; ships on dry ice

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) Survey 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	■	■	■
CK2 (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, 2018.

## Program Information

- Eighteen 10.0-mL liquid serum specimens
- Designed for verifying 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

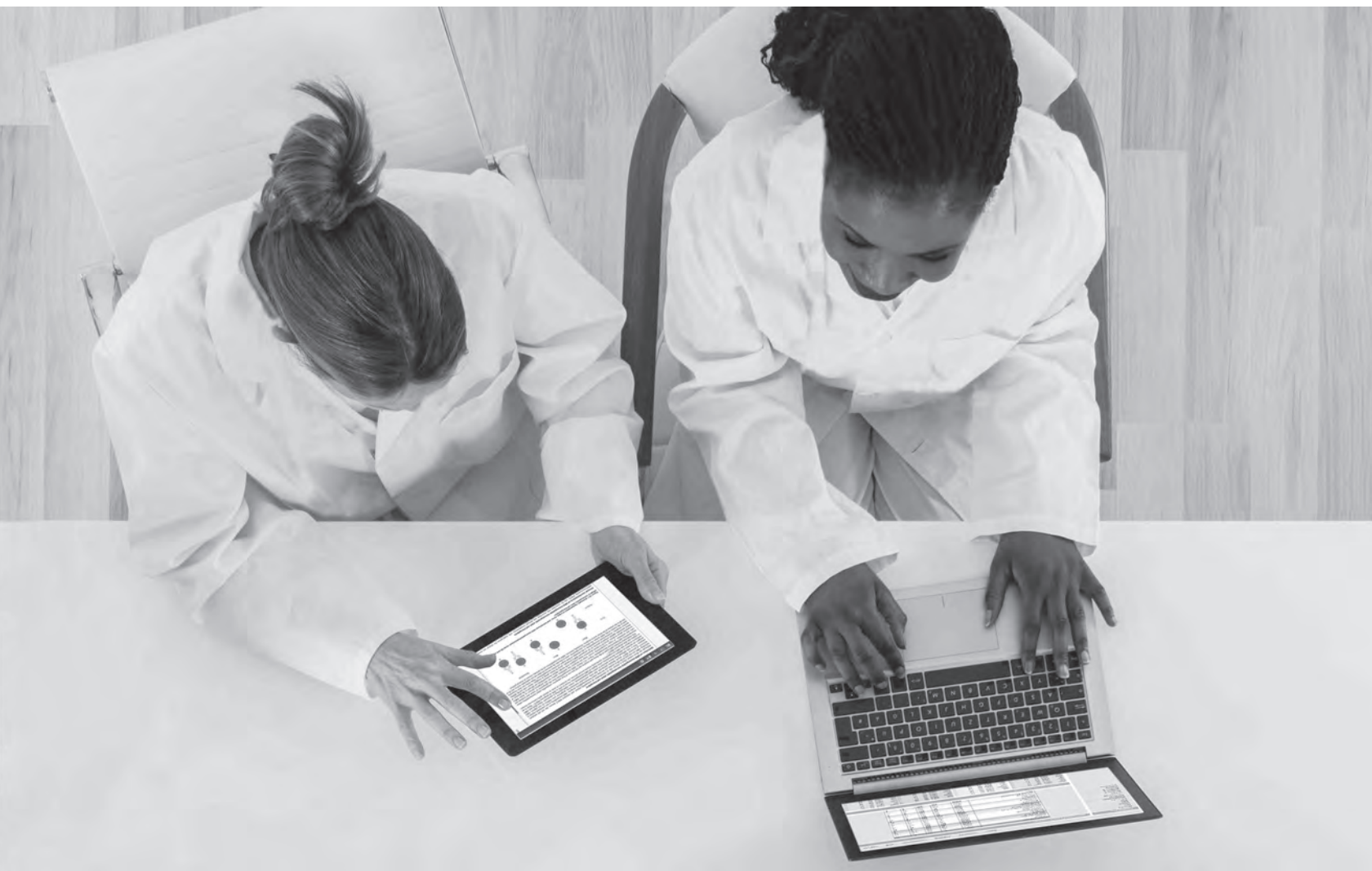
### Urine Toxicology Carryover UTCO

Analyte	Program Code
	UTC0
Benzoylcegonine	■
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

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# 12 Hematology and Clinical Microscopy



## Our programs are supported by 500 experts in laboratory medicine.

These experts spend countless hours monitoring testing trends to:

- Determine specimen specifications to challenge participants.
- Keep our offerings contemporary with new analytes and programs.
- Provide peer-reviewed CME, SAM, and CE education.

## Hematology and Clinical Microscopy

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## New Programs

**NEW**

Quality Cross Check—Reticulocyte Series (RTQ, RT2Q, RT3Q, RT4Q) .....	140
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## New Analyte Additions

**NEW**

Clinical Microscopy Miscellaneous Photopage (CMMP) .....	145
Spermatozoa	

## Discontinued Programs

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Urinalysis and Clinical Microscopy (CMP2, CMP3)

# 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/Shipment
	HE	HEP	
<b>Blood cell identification</b>		■	10
<b>Hematocrit</b>	■	■	5
<b>Hemoglobin</b>	■	■	5
MCV, MCH, and MCHC	■	■	5
MPV	■	■	5
<b>Platelet count</b>	■	■	5
RDW	■	■	5
<b>Red blood cell count</b>	■	■	5
<b>White blood cell count</b>	■	■	5

### Program Information

- Five 3.0-mL whole blood specimens
- HEP - Ten images, each available as photographs and online images
- Three shipments per year



## Blood Cell Identification, Photographs BCP, BCP2

Procedure	Program Code		Challenges/Shipment
	BCP	BCP2	
<b>Blood cell identification</b>	■	■	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



## Erythrocyte Sedimentation Rate ESR, ESR1, ESR2, ESR3

Procedure	Program Code				Challenges/ 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 4.5-mL whole blood specimens
- Two shipments per year



## Hematology Automated Differential Series FH1–FH13, FH1P–FH13P

Analyte/Procedure	Program Code				Challenges/ Shipment
	FH1- FH10	FH1P- FH10P	FH13	FH13P	
Blood cell identification		■		■	10
Hematocrit	■	■	■	■	5
Hemoglobin	■	■	■	■	5
Immature granulocyte parameter	■	■			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, and FH13)
Platelet count	■	■	■	■	5
RDW	■	■	■	■	5
Red blood cell count	■	■	■	■	5
White blood cell count	■	■	■	■	5
WBC differential	■	■	■	■	5

For second instrument reporting options, see the Quality Cross Check programs, FH3Q, FH4Q, FH6Q, and FH9Q, on page 136.

### Program Information

- FH1-FH10 and FH1P-FH10P - Five 2.5-mL whole blood specimens with pierceable caps
- FH13 and 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 137
- Three shipments per year



## Centrifugal Hematology FH15

Analyte/Procedure	Program Code	Challenges/Shipment
	FH15	
Hematocrit	■	5
Hemoglobin	■	5
Platelet count	■	5
WBC count	■	5
WBC differential (2-part)	■	5

### Program Information

- Five 0.6-mL whole blood specimens
- For use with QBC instruments; not intended for spun hematocrit methods
- Three shipments per year

## Quality Cross Check—Hematology Series FH3Q, FH4Q, FH6Q, FH9Q

Analyte/Procedure	Program Code				Challenges/ Shipment
	FH3Q	FH4Q	FH6Q	FH9Q	
Hematocrit	■	■	■	■	3
Hemoglobin	■	■	■	■	3
Immature granulocyte parameter				■	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
White blood cell count	■	■	■	■	3
WBC differential	■	■	■	■	3

These programs do not meet regulatory requirements for proficiency testing; see the FH Series on page 135. For additional information about the CAP Quality Cross Check program, see page 42.

### 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 2.5-mL whole blood specimens with pierceable caps
- Report up to three instruments
- For method compatibility, see instrument matrix on page 137
- Two shipments per year

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## Hematology Automated Differential Series, Instrument Matrix

Instrument	FH and FHQ Series									
	FH1	FH2	FH3/ FH3Q	FH4/ FH4Q	FH6	FH6Q	FH9/ FH9Q	FH10	FH13	FH15
Abbott Cell-Dyn® 1200, 1400, 1600, 1700, 1800, Emerald™	■									
Horiba ABX 9000+, 9018+, 9020+	■									
Sysmex K-series, KCP-1, KX-21/21N, pocH-100i, XP-series	■									
CDS/Medonic M-Series		■								
Coulter® AcT™, MD, ONYX™, S880, S-plus V, ST, STKR, T-series		■								
Drew Scientific DC-18, Drew3, Excell 10/16/18, I-1800,		■								
Horiba ABX Micros		■								
Mindray BC - 2800, 3000/3200 series		■								
Siemens ADVIA® 360		■								
Abbott Cell-Dyn 3000, 3200, 3500, 3700, 4000, Ruby™, Sapphire™			■							
Cell-DYN Emerald 22			■							
Coulter DxH 500			■							
Drew Scientific Excell 22, 2280			■							
Orphee Mythic 22 AL, Orphee Mythic 22 OT			■							
Siemens ADVIA 560			■							
Siemens ADVIA 120, 120 w/SP1, 2120				■						
Coulter Gen-S™, HmX, LH500, MAXM™, MAXM A/L, STKS, VCS™					■	■				
Sysmex XE-2100, XE-2100C, XE-2100D, XE-2100DC, XE-2100L, XE-5000, XN-Series, XS-500i, XS-800i, XS-1000i, XS-1000iAL, XS-1000iC, XT-1800i, XT-2000i, XT-4000i, XE-2100D/L (Blood Center)							■			
Coulter AcT 5 diff (AL, CP, OV)								■		
DIRUI BF Series								■		
Horiba ABX Pentra 60, 80, 120								■		
Coulter LH750, LH755, LH780, LH785, Unicel DxH						■			■	
QBC										■

### Blood Parasite BP

Procedure	Program Code	Challenges/Shipment
	BP	
Thin/thick blood film sets*	■	5

\*This Survey will include corresponding thick films when available.

#### Program Information

- Five Giemsa-stained blood film sets, photographs, and/or online images
- 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/Shipment
	BMD	
Bone marrow differential, including myeloid:erythroid ratio	■	1
Bone marrow cell identification	■	5

#### Additional Information

- Examine an online whole slide image that includes a manual 500 bone marrow differential count 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



### Fetal Red Cell Detection HBF

Procedure	Program Code	Challenges/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/Shipment
	HG	
Hemoglobin identification and quantification	■	4
“Dry lab” educational challenges	■	2
Hemoglobin A <sub>2</sub> quantitation	■	4
Hemoglobin F quantitation	■	1
Sickling test, qualitative	■	4

### Program Information

- Four 0.5-mL stabilized red blood cell specimens
- Two “dry lab” educational challenges (case histories, electrophoresis patterns, and clinical interpretation questions)
- Two shipments per year

## Reticulocyte Series RT, RT2, RT3, RT4

Instrument/Method	Program Code				Challenges/Shipment
	RT	RT2	RT3	RT4	
Abbott Cell-Dyn 4000, Sapphire, Siemens ADVIA 120/2120, and all other automated and manual methods	■				3
Abbott Cell-Dyn 3200, 3500, 3700, Ruby		■			3
Coulter GenS, HmX, LH500, LH700 series, MAXM, STKS, Unicel DxH			■		3
Sysmex XE-2100, XE-2100C, XE-5000, XN Series, XT-2000i, XT-4000i				■	3
Pierceable caps			■	■	3

### Program Information

- RT, RT2 - Three 1.0-mL stabilized red blood cell specimens
- RT3, RT4 - Three 2.0-mL stabilized red blood cell specimens
- Includes percentage and absolute result reporting
- Two shipments per year

## Quality Cross Check—Reticulocyte RTQ, RT2Q, RT3Q, RT4Q

NEW

Instrument/Method	Program Code				Challenges/ Shipment
	RTQ	RT2Q	RT3Q	RT4Q	
Abbott Cell-Dyn 4000, Sapphire, Siemens ADVIA 120/2120, and all other automated and manual methods	■				3
Abbott Cell-Dyn 3200, 3500, 3700, Ruby		■			3
Coulter GenS, HmX, LH500, LH700 series, MAXM, STKS, Unicel DxH			■		3
Sysmex XE-2100, XE-2100C, XE-5000, XN Series, XT-2000i, XT-4000i				■	3

These programs do not meet regulatory requirements for proficiency testing; see the RT Series on page 139. For additional information about the CAP Quality Cross Check program, see page 42.

### 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, RT2Q - 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

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## Sickle Cell Screening SCS

Procedure	Program Code	Challenges/Shipments
	SCS	
Sickling test, qualitative	■	3

### Program Information

- Three 1.0-mL stabilized human erythrocyte specimens
- Two shipments per year

## Transfusion-Related Cell Count TRC

Procedure	Program Code	Challenges/Shipments
	TRC	
Platelet count (platelet-rich plasma)	■	5
WBC count	■	4
Dry 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

### Waived Combination HCC, HCC2

Analyte	Program Code		Challenges/Shipment
	HCC	HCC2	
Hematocrit		■	2
Hemoglobin	■	■	2
Urinalysis/Urine hCG		■	2
Whole blood glucose	■	■	2 (HCC)/3 (HCC2)

#### Program Information

- HCC - Two 1.0-mL whole blood specimens; two shipments per year
- 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 2.5-mL whole blood specimens; two shipments per year: B and D
- To verify instrument compatibility, refer to the instrument matrix on page 66

### Rapid Total White Blood Cell Count RWBC

Procedure	Program Code		Challenges/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

### Virtual Peripheral Blood Smear VPBS

Procedure	Program Code		Challenges/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 WBC 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



## Expanded Virtual Peripheral Blood Smear EHE1

Procedure	Program Code	Challenges/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 WBC/differential count and annotated cells for identification.
- Comprehensive case studies.
- Ability to recognize and integrate problem-solving skills through the use of interpretive questions found throughout discussion.
- Evaluate and identify 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



## Hematopathology Online Education HPATH/HPATH1

Program	Program Code	Challenges/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.

- All cases have been specially selected to highlight important changes in the 2016 revision of the WHO Classification.
- 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.
- Five SAM questions per case.
- See system requirements on page 13.

### Program Information

- HPATH - Five diagnostic challenges/online whole slide images with clinical history; reporting with CME/SAM credit is available for one pathologist/hematologist. For additional pathologist/hematologist, order HPATH1
- HPATH1 - Reporting option with CME/SAM credit for each additional pathologist and hematologist (within the same institution); must order in conjunction with Survey HPATH
- Earn a maximum of 12.5 CME/SAM 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 ABP MOC Part IV Practice Performance Assessment requirements
- 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/Shipment
	<b>CMP</b>	<b>CMP1</b>	
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

#### Program Information

- **CMP** - Three 10.0-mL liquid urine specimens; for use with all instruments except iCHEM; six images, each available as photographs and online images
- **CMP1** - Three 12.0-mL liquid urine specimens; for use with iCHEM instruments; six images, each available as photographs and online images
- Two shipments per year



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#### Additional Information

For second instrument reporting options, see the Quality Cross Check program, CMQ, on page 145.

### Test your diagnostic skills as a pathologist with CPIP

Online, hands-on and interactive, the Clinical Pathology Improvement Program (CPIP) enables pathologists to sharpen their diagnostic skills in real time by working through an actual case. Each month, you will receive a new scenario, including slide images and clinical background. As the case unfolds, more information is revealed, just as in the laboratory. Participants who successfully complete the posttest may apply their earned credits to their MOC SAM requirements. Enjoy a full year of CPIP and earn up to 15 CME/SAM credits.

**Choose code CPIP/CPIP1 on your Surveys order form.**

### Quality Cross Check—Urinalysis CMQ

Analyte	Program Code	Challenges/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 Surveys CMP and CMP1 on page 144. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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.

### Clinical Microscopy Miscellaneous Photopage CMMP

Procedure	Program Code	Challenges/Shipment
	CMMP	
Fern test (vaginal)	■	1
KOH preparation (skin or vaginal)	■	1
Nasal smear	■	1
Pinworm preparation	■	1
Spermatozoa <b>NEW</b>	■	1
Stool for leukocytes	■	1
Urine sediment photographs	■	3
Vaginal wet preparation photographs (for clue cells, epithelial cells, trichomonas, and yeast)	■	1

#### Program Information

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

#### Program Information

- Ten images, each available as photographs and online images
- Two shipments per year

### Virtual Body Fluid VBF

Procedure	Program Code	Challenges/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

### Amniotic Fluid Leakage AFL

Procedure	Program Code	Challenges/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/Shipment
	ABF1	ABF2	ABF3	
Red blood cell fluid count	■	■	■	2
White blood cell 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		■	
Symex XE-2100, XE-5000, XN-series, XT-1800i, XT-2000i, XT-4000i		■	
IRIS iQ® 200			■

## Automated Urine Microscopy UAA, UAA1

Analyte	Program Code		Challenges/Shipment
	UAA	UAA1	
Casts, semiquantitative	■	■	2
Crystals, semiquantitative	■		2
Epithelial cells, semiquantitative		■	2
Red blood cells, quantitative	■	■	2
White blood cells, quantitative	■	■	2

### 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 Urinalysis, Instrument Matrix

Instrument	UAA, UAA1	
	UAA	UAA1
DIRUI FUS	X	
IRIS Iq200	X	
Roche cobas u701	X	
ARKRAY Auction Hybrid		X
77 Elektronika		X
Sysmex UF 50, 100, 500i, 1000i, 5000		X
Sysmex UX 2000		X

## Crystals BCR, BFC, URC

Procedure	Program Code			Challenges/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/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/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/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/Shipment
	GOCB	
Gastric occult blood	■	3
Gastric pH	■	3

#### Program Information

- Three 2.0-mL simulated gastric specimens
- Two shipments per year

### Glucose-6-Phosphate Dehydrogenase G6PDS

Analyte	Program Code	Challenges/Shipment
	G6PDS	
G6PD, qualitative and quantitative	■	2

#### Program Information

- Two 0.5-mL lyophilized hemolysate samples
- Two shipments per year

### Hemocytometer Fluid Count HFC

Procedure	Program Code	Challenges/Shipment
	HFC	
Cytopreparation differential	■	3
Red blood cell fluid count	■	3
White blood cell fluid count	■	3

#### Program Information

- Three 1.0-mL simulated body fluid specimens
- Two shipments per year

## Hemocytometer Fluid Count, International HFCI

Procedure	Program Code	Challenges/Shipment
	HFCI	
Red blood cell fluid count	■	3
White blood cell fluid count	■	3
Body fluid differential	■	2

This program meets the CAP's Accreditation Program requirements.

### Additional Information

- 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
- Designed for international laboratories that have experienced significant shipping and receiving issues and need longer program stability
- Powered by DigitalScope technology
- Two shipments per year

## Lamellar Body Count LBC

Procedure	Program Code	Challenges/Shipment
	LBC	
Lamellar body count	■	3

### Program Information

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

## Occult Blood OCB

Analyte	Program Code	Challenges/Shipment
	OCB	
Occult blood	■	3

### Additional Information

For second instrument reporting options, see the Quality Cross Check program, OCBQ, on page 150.

### Program Information

- Three 2.0-mL simulated fecal specimens
- Two shipments per year

### Quality Cross Check—Occult Blood OCBQ

Analyte	Program Code	Challenges/Shipment
	OCBQ	
Occult blood	■	3

This program does not meet regulatory requirements for proficiency testing; see Survey OCB on page 149. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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

### Rupture of Fetal Membranes Testing ROM1

Procedure	Program Code	Challenges/Shipment
	ROM1	
Rupture of fetal membranes	■	3

#### Program Information

- Three 0.5-mL simulated vaginal specimens for methods such as Amnisure, Actim PROM, and Clinical Innovations
- Two shipments per year

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Hematology and Clinical Microscopy

### Special Clinical Microscopy SCM1, SCM2

Analyte/Procedure	Program Code		Challenges/Shipment
	SCM1	SCM2	
Urine hemosiderin, Prussian blue	■		3
Urine eosinophils, Wright stain		■	3

#### 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/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/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/Shipment
	UMC	
Creatinine	■	2
Urine albumin (microalbumin): creatinine ratio	■	2
Urine albumin (microalbumin), semiquantitative	■	2

For quantitative reporting, refer to Survey U, page 68.

### Program Information

- Two 3.0-mL liquid urine specimens
- For use with dipstick and semiquantitative methods only
- Two shipments per year

## Worm Identification WID

Procedure	Program Code	Challenges/Shipment
	WID	
Worm identification	■	3

### Program Information

- Three images, each available as photographs and online images
- Two shipments per year

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# 13 Reproductive Medicine



## Access unique, integrated resources.

Reproductive medicine's integrated laboratory improvement program offers:

- Unique accreditation checklist specific for the subspecialty of reproductive medicine
- Comprehensive proficiency testing and educational programs for andrology and embryology

## Reproductive Medicine

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Andrology and Embryology..... 154

# 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, SM, SV, ASA							
Procedure	Program Code						Challenges/ Shipment
	SC	SC1	PV	SM	SV	ASA	
Sperm count and presence/absence (manual methods and CASA systems)	■						2
Sperm count and presence/absence (automated methods)		■					2
Postvasectomy sperm count and presence/absence			■				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
- SM - Two prepared slides for staining
- SV - Two eosin-nigrosin-stained slides
- ASA - Two 0.3-mL serum specimens
- Two shipments per year



Sperm Motility, Morphology, and Viability SMCD, SM1CD, SM2CD				
Procedure	Program Code			Challenges/ Shipment
	SMCD	SM1CD	SM2CD	
Sperm count	■			2
Sperm motility/forward progression	■			2
Sperm morphology		■		2
Sperm viability			■	2

### Program Information

- SMCD - One CD-ROM with video clips
- SM1CD - Two challenges, each available as images on CD-ROM and online whole slide images powered by DigitalScope® technology
- SM2CD - Two challenges, each available as images on CD-ROM and online whole slide images powered by DigitalScope technology
- Two shipments per year



## Embryology EMB

Procedure	Program Code	Challenges/Shipment
	EMB	
Embryo transfer and quality assessment (three- and five-day-old embryos)	■	4

### Program Information

- One CD-ROM with video clips
- Two shipments per year

## Ligand—Special Y, YY, DY

Analyte	Program Code		Challenges/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		■	3
Testosterone, free		■	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 Survey Y or YY
- Conventional and International System of Units (SI) reporting offered
- Two shipments per year



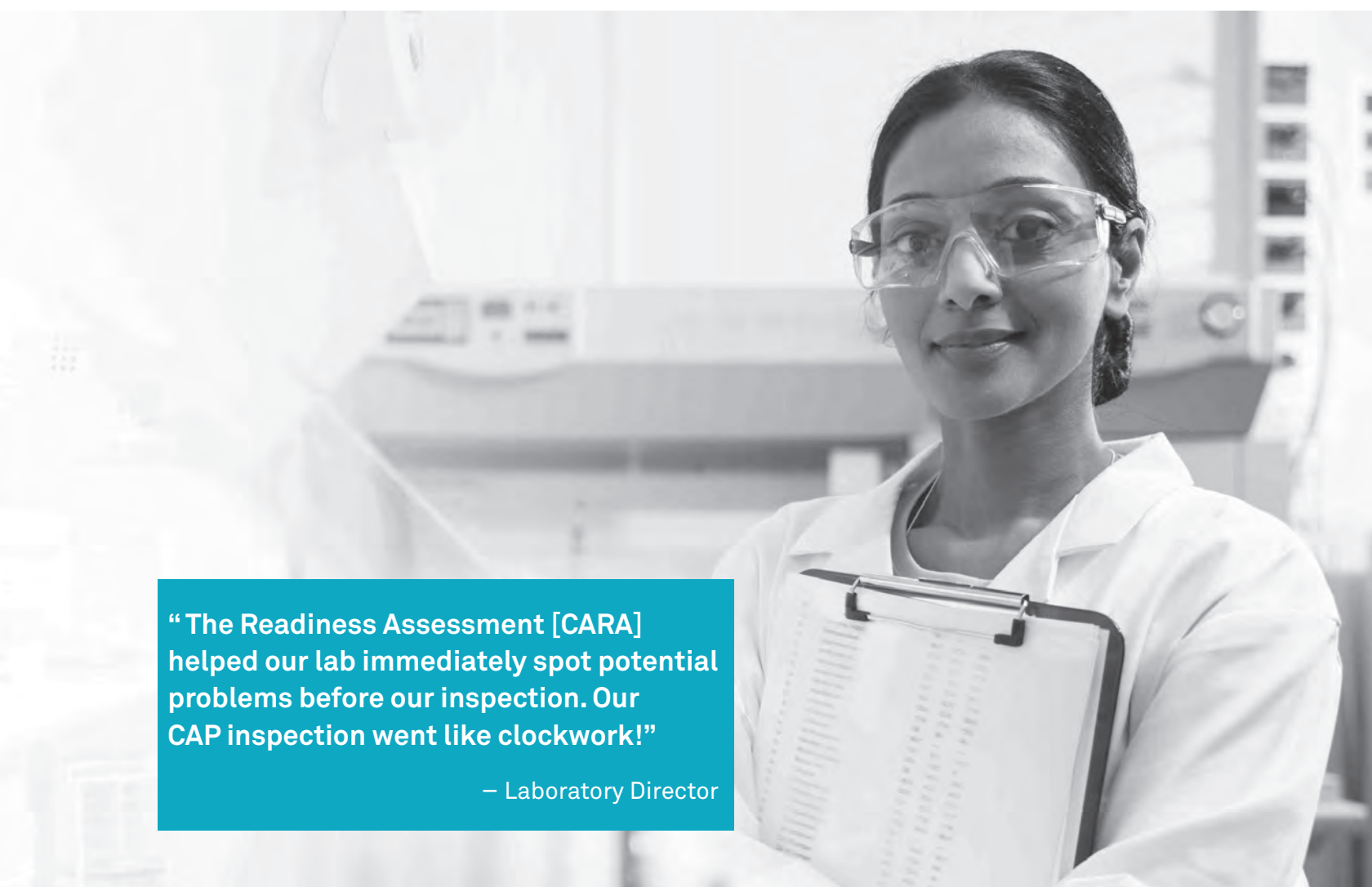
## Antimüllerian Hormone AMH

Analyte	Program Code	Challenges/Shipment
	AMH	
Antimüllerian hormone	■	3

### Program Information

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

# Are you ready for your CAP inspection?



**“The Readiness Assessment [CARA] helped our lab immediately spot potential problems before our inspection. Our CAP inspection went like clockwork!”**

– Laboratory Director

The CAP Accreditation Readiness Assessment (CARA®) is an on-site evaluation and education program for laboratories just beginning their pursuit of CAP accreditation.

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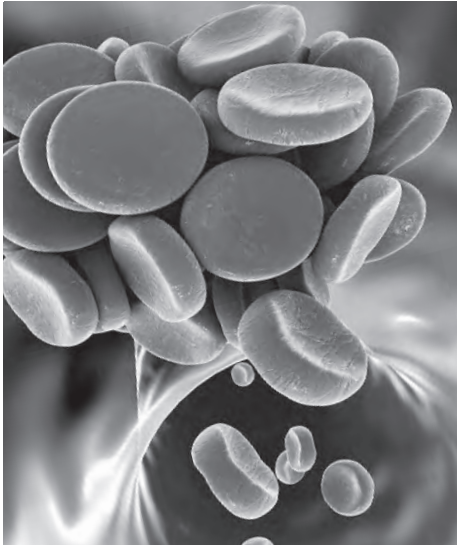
- Facilitating an in-depth understanding of CAP requirements as they apply to your laboratory
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# 14 Coagulation



## 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**

Apixaban Anticoagulant Monitoring (APXBN) ..... 161

### Discontinued Programs

Whole Blood D-Dimer (WBDD)

## 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/ Shipment
	CGB	CGL	CGDF	
<b>Activated partial thromboplastin time</b>	■	■		5
<b>Fibrinogen</b>		■		5
International normalized ratio (INR)*	■	■		5
<b>Prothrombin time</b>	■	■		5
D-dimer**		■	■	2 per year
Fibrin(ogen) degradation products, plasma**		■	■	2 per year
Fibrin(ogen) degradation products, serum**		■	■	2 per year

\*Participants reporting INR results will receive a special evaluation to assess the INR calculation.

\*\*D-dimer and FDP are shipped with the CGL A and C mailings.

#### Additional Information

For second instrument reporting options, see the Quality Cross Check program, CGLQ, below.

#### Program Information

- CGB - Five 1.0-mL lyophilized plasma specimens; three shipments per year
- CGL - Five 1.0-mL lyophilized plasma specimens; three shipments per year; one 1.0-mL plasma specimen and one 1.0-mL serum specimen; three shipments per year
- CGDF - One 1.0-mL serum specimen; one 1.0-mL lyophilized plasma specimen; two shipments per year



### Quality Cross Check—Coagulation CGLQ

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

This program does not meet regulatory requirements for proficiency testing; see Survey CGL above. For additional information about the CAP Quality Cross Check program, see page 42.

#### 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, one 1.0-mL plasma specimen, and one 2.0-mL serum specimen
- Report up to three instruments
- Two shipments per year



## Coagulation—Extended CGE, CGEX

Analyte	Program Code	Challenges/ Shipment
	CGE, CGEX	
See analyte listing below	■	2

### Program Information

- CGE - Two 1.0-mL lyophilized plasma specimens in triplicate
- CGEX - Two 1.0-mL lyophilized plasma specimens (five vials each)
- Two shipments per year

## Coagulation Analyte Listing

50:50 mixing study, PT and aPTT	Fibrin monomer	Prothrombin fragment 1.2
Activated partial thromboplastin time	Fibrinogen activity	Prothrombin time
Activated protein C resistance	Fibrinogen antigen	Reptilase time
Alpha-2-antiplasmin	Heparin-induced thrombocytopenia (HIT)	Thrombin-antithrombin
Anti-beta-2-glycoprotein (IgG and IgM)	High molecular weight kininogen	Thrombin time
Antiphospholipid antibody (IgG, IgM, and IgA)	Kaolin-activated aPTT	Tissue plasminogen activator
Antithrombin activity/antigen	Kaolin clotting time	von Willebrand factor activity:
Dilute prothrombin time	Lupus anticoagulant	- Collagen binding
Dilute Russell's viper venom time	Plasminogen activator inhibitor	- Glycoprotein I <sub>b</sub> binding
Euglobulin test	Plasminogen activity/antigen	- Ristocetin cofactor
Factors II, V, VII, VIII, IX, X, XI, XII, and XIII	Prekallikrein	von Willebrand factor antigen
Factor VIII assay	Protein C	von Willebrand multimer analysis
	Protein S	

## Coagulation Special Testing Series CGS1, CGS2, CGS3, CGS4, CGS5, CGS6, CGS7, CGS8

Module/Analyte	Challenges/Shipment							
	Program Code							
	CGS1	CGS2	CGS3	CGS4	CGS5	CGS6	CGS7	CGS8
Activated partial thromboplastin time*	2		2	3				
International normalized ratio (INR)	2			3				
Prothrombin time*	2			3				
<b>Lupus Anticoagulant and Mixing Studies Module</b>								
Dilute Russell's viper venom time	2							
Lupus anticoagulant (confirmation and screen)	2							
50:50 mixing studies, PT and aPTT	2							
<b>Thrombophilia Module</b>								
Activated protein C resistance		2						
Antithrombin (activity, antigen)		2						
Protein C (activity, antigen)		2						
Protein S (activity, free antigen, total antigen)		2						
<b>von Willebrand Factor Antigen Module</b>								
Factor VIII assay			2					
von Willebrand factor (antigen, activity, multimers)			2					
<b>Heparin Module</b>								
Heparin activities using methodologies including Anti-Xa (unfractionated, low molecular weight, and hybrid curve)				3				
Thrombin time				3				
<b>Heparin-Induced Thrombocytopenia Module</b>								
Appropriate with methods such as Gen-Probe Lifecodes PF4 IgG and Gen-Probe Lifecodes PF4 Enhanced® assays					2			
Appropriate with the Akers Biosciences, Inc. PIFA® Heparin/Platelet Factor 4 Rapid Assay						3		

Continued on the next page

\*Not appropriate for meeting regulatory requirements, see page 158.

### Program Information

- CGS1, CGS2, CGS3 - A total of two 2.0-mL of lyophilized plasma
- CGS4 - Three 1.0-mL lyophilized plasma specimens
- CGS5 - Two 60.0-µL serum specimens
- CGS6, CGS8 - Three 400.0-µL frozen serum specimens
- CGS7 - Three 1.0-mL lyophilized plasma specimens in duplicate
- Two shipments per year

## Coagulation Special Testing Series CGS1, CGS2, CGS3, CGS4, CGS5, CGS6, CGS7, CGS8 continued

Module/Analyte	Challenges/Shipment							
	Program Code							
	CGS1	CGS2	CGS3	CGS4	CGS5	CGS6	CGS7	CGS8
<b>Heparin-Induced Thrombocytopenia Module continued</b>								
Appropriate with the Akers Biosciences, Inc. PIFA PlussPF4™ Heparin/Platelet Factor 4 Rapid Assay								3
<b>ADAMTS13 Module</b>								
ADAMTS13 (activity, inhibitor screen, and titer)								3

\*Not appropriate for meeting regulatory requirements, see page 158.

### Program Information

- CGS1, CGS2, CGS3 - A total of 2.0-mL of lyophilized plasma
- CGS4 - Three 1.0-mL lyophilized plasma specimens
- CGS5 - Two 60.0-μL serum specimens
- CGS6, CGS8 - Three 400.0-μL frozen 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/ Shipment
	APXBN <b>NEW</b>	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 158.

### Program Information

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

## Activated Clotting Time Series CT, CT1, CT2, CT3, CT5

Instrument/Cartridge	Program Code					Challenges/Shipment
	CT	CT1	CT2	CT3	CT5	
Helena Actalyke®	■					3
Helena Cascade POC	■					3
IL Gem® PCL ACT				■		3
IL Gem PCL ACT-LR			■			3
IL GEM PCL Plus ACT				■		3
IL GEM PCL Plus ACT-LR			■			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, HMS Plus		■				3
Sienco Sonoclot®	■					3

### Additional Information

For second instrument reporting options, see the Quality Cross Check programs CTQ-CT3Q and CT5Q, on page 163.

### 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/ Shipment
	CTQ	CT1Q	CT2Q	CT3Q	CT5Q	
Helena Actalyke®	■					3
Helena Cascade POC	■					3
IL Gem® PCL ACT				■		3
IL Gem PCL ACT-LR			■			3
IL GEM PCL Plus ACT				■		3
IL GEM PCL Plus ACT-LR			■			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, HMS Plus		■				3
Sienco Sonoclot®	■					3

These programs do not meet regulatory requirements for proficiency testing; see Surveys CT-CT3 and CT5 on page 162. For additional information about the CAP Quality Cross Check program, see page 42.

### 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/Shipment
	PF	PF1	
Platelet aggregation	■		2
PFA-100		■	2
Helena Plateletworks®		■	2

\*This Survey requires 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

### Viscoelastometry TEG

Instrument/Method	Program Code		Challenges/Shipment
	TEG		
Viscoelastometry	■		2

#### Program Information

- Two 1.0-mL lyophilized whole blood specimens with diluents
- For use with the Haemonetics™ Thromboelastograph®, including TEG5000 and TEG6s, ROTEM® *delta* hemostasis analyzers
- Two shipments per year

### Coagulation Calibration Verification/Linearity LN35, LN36, LN37

Analyte	Program Code			Target Ranges
	LN35	LN36	LN37	
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.

LN Express service is available.

#### 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	Target Range
D-dimer	■	220–5,500 ng/mL FEU

LN Express service is available.

#### Program Information

- Six 1.0-mL plasma specimens
- Two shipments per year



### Fibrinogen Calibration Verification/Linearity LN44

Analyte	Program Code	
	LN44	Target Range
Fibrinogen	■	80–900 mg/dL

LN Express service is available.

#### Program Information

- Six 1.0-mL frozen plasma specimens
- Two shipments per year; ships on dry ice

### Drug-Specific Platelet Aggregation PIA, PIAX

Procedure	Program Code		Challenges/Shipment
	PIA	PIAX	
Aspirin assay	■	■	3
PRU test	■	■	3
IIb/IIIa assay	■	■	3

#### Program Information

- PIA - Three lyophilized specimens with diluents
- PIAX - All Survey 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/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™	■				
Helena Cascade POC – Citrated		■			
Helena Cascade POC – Noncitrated			■		
IL GEM PCL, PCL Plus – Citrated		■			
IL GEM PCL, PCL Plus – Noncitrated			■		
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 and XS Pro				■	
Roche CoaguChek XS System					■

## 11-dehydrothromboxane B2 TBX

Analyte	Program Code	Challenges/Shipment
	TBX	
11-dehydrothromboxane B2	■	3

### Program Information

- Three 0.5-mL lyophilized urine specimens
- For use with Aspirin Works
- Two shipments per year



## Platelet Mapping\* PLTM

Analyte	Program Code	Challenges/Shipment
	PLTM	
AA % aggregation/inhibition	■	2
ADP % aggregation/inhibition	■	2

\*This Survey 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<sub>2</sub>
- For use with the Haemonetics Platelet Mapping<sup>®</sup> 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	158

### Program Information

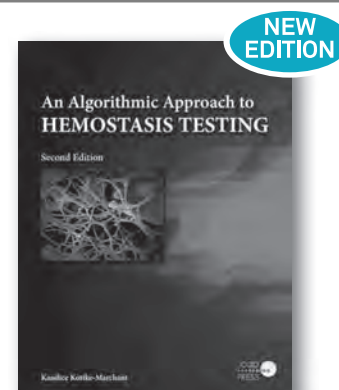
- Five 1.0-mL lyophilized plasma specimens; three shipments per year; one 1.0-mL lyophilized plasma specimen and one 1.0-mL serum specimen; two shipments per year

## Give better consultations for hemostasis diagnosis

- New chapters on emergency assessment, consultation, antifibrinolytic and thrombolytic agents, and more
- Insightful case studies
- Detailed algorithms to assist in diagnosis

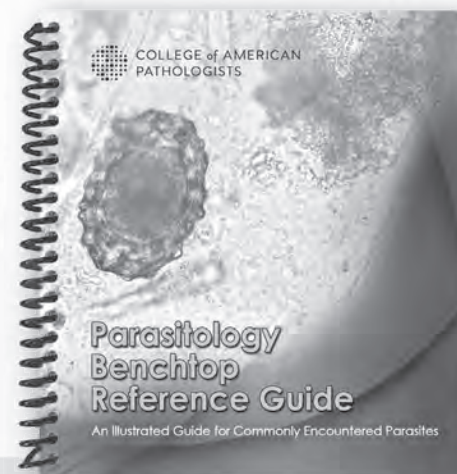
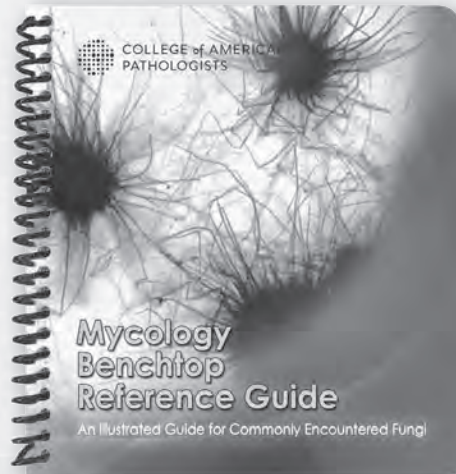
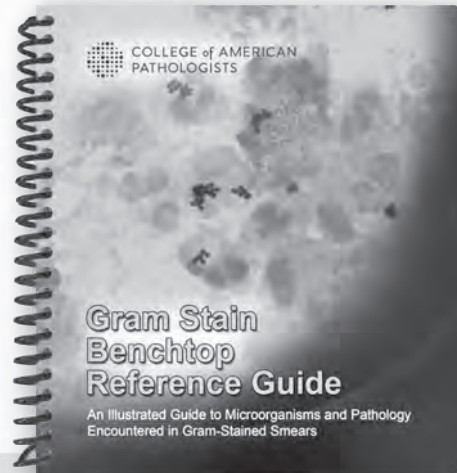
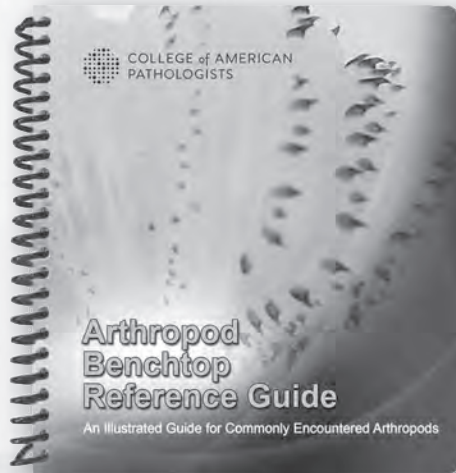
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**GSBRG** Gram Stain Benchtop Reference Guide

**MBRG** Mycology Benchtop Reference Guide

**PBRG** Parasitology Benchtop Reference Guide

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# 15 Microbiology



## Ensure accuracy of Zika testing.

Our new Vector-Borne Disease Molecular (VBDM) Survey is intended for laboratories performing Zika testing using nucleic acid amplification methodologies.

- Add a level of quality assurance to ensure you deliver accurate test results.
- Provide an additional opportunity for your laboratory staff to fulfill competency requirements.

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<i>Plesiomonas shigelloides</i>	
Sapovirus	
<i>Vibrio cholerae</i>	
<i>Yersinia enterocolitica</i>	

# Bacteriology

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

## Guide for Ordering Appropriate Bacteriology Surveys

Procedure	Program Code									
	D	D4	MC1	MC2	MC5	D2	D7	D3	MC4	D1
<b>Bacterial identification</b>	■	■	■	■	■	■	■	■	■	■
<b>Gram stain</b>	■	■	■	■	■	■	■	■		
<b>Antimicrobial susceptibility testing</b>	■	■	■	■	■	■	■			
<b>Bacterial antigen detection</b>	■	■	■	■	■				■	

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 Survey.

### Bacteriology D

Procedure	Program Code	Challenges/Shipment
	D	
<b>Antimicrobial susceptibility testing</b>	■	1 graded, 1 ungraded
<b>Bacterial antigen detection</b>	■	2
<b>Bacterial identification</b>	■	5
<b>Gram stain</b>	■	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*

#### 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 *Clostridium difficile*, for use with rapid or molecular testing methods
- Three shipments per year



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

## Expanded Bacteriology DEX

Analyte	Program Code	Challenges/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/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, D7

Procedure	Program Code				Challenges/ Shipment
	D1	D2	D3	D7	
Antimicrobial susceptibility testing		■		■	1
Bacterial identification	■	■	■	■	5
Gram stain		■	■	■	1
Culture source:	Throat	Urine	Cervical	Throat/Urine	
Microbiologic level:	Presence or absence of Group A <i>Streptococcus</i> determination	Organisms identified to the extent of your laboratory's protocol	Presence or absence of <i>Neisseria gonorrhoeae</i> determination	Combination of two throat and three urine culture specimens	

## 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
- D7 - Two swab specimens with diluents in duplicate, three loop specimens with diluents in duplicate, one susceptibility challenge, and one Gram stain challenge
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year



## Identify microorganisms quickly and confidently

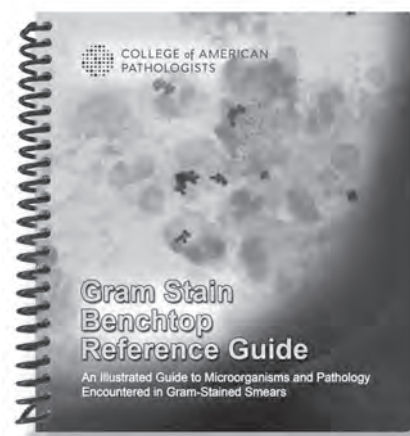
*Gram Stain Benchtop Reference Guide* is an illustrated guide to gram-positive and gram-negative organisms. Its rugged construction is well suited for students and medical technologists for heavy use at the workbench.

Features include:

- Theory and application of the Gram stain
- Detailed descriptions of microbial morphology, quantitation, and indicators of pathology
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- Seven tabbed sections for easy reference

This sturdy, spiral-bound, laminated guide is conveniently sized at 6½" x 7".

**Choose code GSBRG on your Surveys order form.**



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

## Bacteriology—Limited D4

Procedure	Program Code	Challenges/Shipment
	D4	
Antimicrobial susceptibility testing	■	1
Rapid group A <i>Streptococcus</i> antigen detection*	■	1
Bacterial identification	■	5
Gram stain	■	1
Culture source:	Microbiologic level:	
GC culture	Presence or absence of <i>Neisseria gonorrhoeae</i> determination	
Throat culture	Presence or absence of Group A <i>Streptococcus</i> determination	
Urine culture	Organisms identified to the extent of your laboratory's protocol	

\*If you are using a waived method for *Streptococcus* testing, these results will not count toward the required five challenges for the subspecialty of microbiology.

### Program Information

- Five loop/swab specimens with diluents in duplicate, and one swab specimen
- Two throat culture specimens, two urine culture specimens, one GC culture specimen, and one bacterial antigen detection specimen
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year



## Microbiology—Combination w/GC MC1, MC2

Procedure	Challenges/Shipment	
	Program Code	
	MC1	MC2
Antimicrobial susceptibility	1	1
GC culture	5	
Gram stain	2	1
Rapid group A <i>Streptococcus</i> antigen detection*	1	1
Throat culture	2	3
Urine culture	3	5

\*If you are using a waived method for *Streptococcus* testing, these results will not count toward the required five challenges for the subspecialty of microbiology.

### Program Information

- MC1 - Eight loop specimens with diluents in duplicate, two swab specimens with diluents in duplicate, and one swab specimen for antigen detection
- MC2 - Five loop specimens with diluents in duplicate, three swab specimens with diluents in duplicate, and one swab specimen for antigen detection
- Urine cultures will only have one susceptibility challenge
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

## Urine Colony Count MC3, MC4

Procedure	Challenges/Shipment	
	Program Code	
	MC3	MC4
Urine colony count/ <b>urine culture identification</b>	2	5
<b>Rapid group A <i>Streptococcus</i> antigen detection*</b>		3
<b>Throat culture</b>		3

\*If you are using a waived method for *Streptococcus* testing, these results will not count toward the required five challenges for the subspecialty of microbiology.

### Program Information

- MC3 - Two 2.0-mL urine specimens with diluents
- MC4 - Five 2.0-mL urine specimens with diluents, three swab specimens (in duplicate) with diluents, and three swab specimens for antigen detection
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year



## Throat & Urine Culture/Rapid Strep A Antigen Detection MC5

Procedure	Program Code	Challenges/Shipment
	MC5	
<b>Antimicrobial susceptibility</b>	■	1
<b>Gram stain</b>	■	1
<b>Rapid group A <i>Streptococcus</i> antigen detection*</b>	■	2
<b>Throat culture</b>	■	3
<b>Urine culture</b>	■	3

\*If you are using a waived method for *Streptococcus* testing, these results will not count toward the required five challenges for the subspecialty of microbiology.

### Program Information

- Three loop specimens with diluents in duplicate, three swab specimens with diluents in duplicate, and two swab specimens for antigen detection
- Urine cultures will only have one susceptibility challenge
- Throat swabs compatible with molecular- and culture-based methods
- Three shipments per year



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Microbiology

## Gram Stain D5

Procedure	Program Code	Challenges/Shipment
	D5	
<b>Gram stain</b>	■	5

### Program Information

- Five air-dried, methanol-fixed unstained glass slides
- Three shipments per year



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.



## Virtual Gram Stain Competency VGS1, VGS2

Procedure	Program Code		Challenges/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 Strep A Antigen Detection D6

Procedure	Program Code		Challenges/Shipment
	D6		
Group A <i>Streptococcus</i> antigen detection*	■		5

\*If you are using a waived method for *Streptococcus* testing, these results will not count toward the required five challenges for the subspecialty of microbiology.

### Program Information

- Five swab specimens
- Not compatible with molecular- and culture-based methods
- Three shipments per year



## Rapid Strep A Antigen Detection, Waived D9

Procedure	Program Code		Challenges/Shipment
	D9		
Group A <i>Streptococcus</i> 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

Procedure	Program Code	Challenges/Shipment
	D8	
Group B <i>Streptococcus</i> detection	■	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/Shipment
	LBAS	SBAS	
<i>Legionella pneumophila</i> antigen detection	■		2
<i>Streptococcus pneumoniae</i> antigen detection		■	2

#### Program Information

- Two 0.5-mL liquid simulated clinical specimens
- Two shipments per year

### Blood Culture BCS

Procedure	Program Code	Challenges/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



15

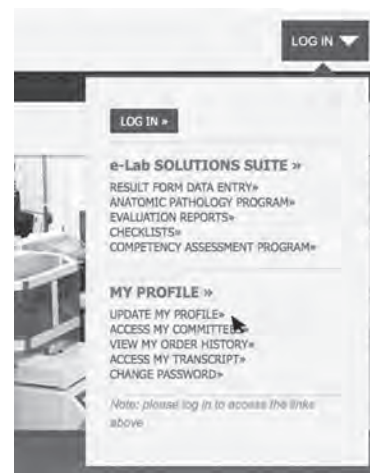
Microbiology

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Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

### Blood Culture, *Staphylococcus aureus* BCS1

Analyte	Program Code	Challenges/Shipment
	BCS1	
<i>Staphylococcus aureus</i> /MRSA/MSSA	■	3

#### Program Information

- Three specimens with diluents for inoculation of blood culture bottles
- Compatible with molecular methods for rapid detection of *S. aureus*/MRSA/MSSA from positive blood culture bottles
- Two shipments per year



### PNA FISH PNA1, PNA2

Analyte	Program Code		Challenges/Shipment
	PNA1	PNA2	
<i>Staphylococcus</i>	■		3
Yeast		■	3

#### Program Information

- Three specimens with diluents for inoculation of blood culture bottles
- Two shipments per year



### *Bordetella pertussis/parapertussis*, Molecular BOR

Analyte	Program Code	Challenges/Shipment
	BOR	
<i>Bordetella pertussis</i>	■	3
<i>Bordetella parapertussis</i>	■	3

#### Program Information

- Three swab specimens
- Designed for molecular techniques
- Two shipments per year

### *Campylobacter* CAMP

Analyte	Program Code	Challenges/Shipment
	CAMP	
<i>Campylobacter</i>	■	2

#### Program Information

- Two swabs with diluents in duplicate
- For use with rapid antigen, culture-based testing, and molecular methods
- Two shipments per year



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

***Clostridium difficile*, 2 Challenge CDF2**

Procedure	Program Code	Challenges/Shipment
	CDF2	
<i>Clostridium difficile</i>	■	2

**Program Information**

- Two 0.5-mL lyophilized specimens, for use with rapid or molecular testing methods
- Two shipments per year

***Clostridium difficile*, 5 Challenge CDF5**

Procedure	Program Code	Challenges/Shipment
	CDF5	
<i>Clostridium difficile</i>	■	5

**Program Information**

- Five 0.5-mL lyophilized specimens, for use with rapid or molecular testing methods
- Three shipments per year

***Chlamydia* Antigen Detection HC1, HC3**

Procedure	Program Code		Challenges/Shipment
	HC1	HC3	
Antigen detection (DFA)	■		5
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

**Fecal Lactoferrin FLAC**

Analyte	Program Code	Challenges/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/Shipment
	HPS	
<i>Helicobacter pylori</i> antigen detection	■	2

**Program Information**

- Two 0.5-mL fecal suspensions
- Two shipments per year



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

### Methicillin Resistant *S. aureus*, 2 Challenge MRS

Procedure	Program Code	Challenges/Shipment
	MRS	
MRSA/MSSA detection	■	2

#### Program Information

- Two swab specimens with diluents
- For use with culture-based testing
- Two shipments per year



### MRSA Screen, Molecular, 2 Challenge MRS2M

**NEW**

Procedure	Program Code	Challenges/Shipment
	MRS2M	
MRSA/MSSA/SA detection	■	2

#### Program Information

- Two swab specimens (in duplicate)
- For use with molecular methods only
- Two shipments per year

### Methicillin-Resistant *Staphylococcus aureus* Screen MRS5

Procedure	Program Code	Challenges/Shipment
	MRS5	
MRSA/MSSA detection	■	5

#### Program Information

- Five swab specimens with diluents
- For use with culture-based testing
- Three shipments per year



### MRSA Screen, Molecular, 5 Challenge MRS5M

**NEW**

Procedure	Program Code	Challenges/Shipment
	MRS5M	
MRSA/MSSA/SA detection	■	5

#### Program Information

- Five swab specimens (in duplicate)
- For use with molecular methods only
- Three shipments per year

**15**
**Microbiology**


Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

## Laboratory Preparedness Exercise LPX

Analyte	Program Code	Challenges/Shipment
	LPX	
Live organisms	■	3

### Additional Information

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



## Rapid Urease RUR

Analyte	Program Code	Challenges/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/Shipment
	SP	SPN	SP1	
Adenovirus 40/41	■	■		2
<i>C. difficile</i>	■	■		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



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

### Shiga Toxin ST

Analyte	Program Code	Challenges/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/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/Shipment
	VS*	VS1**	
<i>Candida</i> sp.	■		5
<i>Gardnerella vaginalis</i>	■		5
<i>Trichomonas vaginalis</i>	■	■	5

\*The biohazard warning applies to Survey VS.

\*\*Molecular users are encouraged to use *Trichomonas vaginalis*, Molecular TVAG on page 189.

#### 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* methods; two 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/Shipment
	VS2	
Interpretation of Gram-stained vaginal smears	■	3

#### Additional Information

- 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

### Vancomycin-Resistant *Enterococcus* VRE

Procedure	Program Code	Challenges/Shipment
	VRE	
Vancomycin-resistant <i>Enterococcus</i> (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/Shipment
	<b>E</b>	
<b>Acid-fast smear</b>	■	1
<b>Antimycobacterial susceptibility testing</b>	■	1 graded, 1 ungraded
<b>Mycobacterial identification*</b>	■	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/Shipment
	<b>E1</b>	
<b>Acid-fast smear</b>	■	5
<b>Mycobacterial culture</b>	■	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 MTBR

Procedure	Program Code	Challenges/Shipment
	<b>MTBR</b>	
<b><i>Mycobacterium tuberculosis</i> detection</b>	■	3
<b>Rifampin resistance</b>	■	3

### Program Information

- 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/Shipment
	F	
Antifungal susceptibility testing	■	1
Cryptococcal antigen detection	■	2 per year
<b>Mold and yeast identification</b>	■	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/Shipment
	F1	
Antifungal susceptibility testing	■	1
Cryptococcal antigen detection	■	2 per year
<b>Yeast identification</b>	■	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/Shipment
	F3	
Yeast identification	■	5

#### Program Information

- Five loops for culture with diluents in duplicate
- Identification of *Candida* species may be performed by culture, molecular, and rapid methods
- Three shipments per year



### Cryptococcal Antigen Detection CRYP

Analyte	Program Code	Challenges/Shipment
	CRYP	
Cryptococcal antigen detection	■	5

#### Program Information

- Five 1.0-mL simulated cerebral spinal fluids
- Three shipments per year

### Galactomannan FGAL

Analyte	Program Code	Challenges/Shipment
	FGAL	
Galactomannan - <i>Aspergillus</i>	■	3

#### Program Information

- Three liquid specimens
- For use with methods such as Bio-Rad Platelia™
- Two shipments per year

### Fungal Serology FSER

Procedure	Program Code	Challenges/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



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

### Fungal Smear FSM

Procedure	Program Code	Challenges/Shipment
	FSM	
KOH preparation/calcofluor white	■	3

#### Program Information

- Three slides
- Two shipments per year

### India Ink IND

Procedure	Program Code	Challenges/Shipment
	IND	
India ink	■	2

#### Program Information

- Two liquid specimens
- Two shipments per year

### *Pneumocystis* PCP1, PCP2, PCP4

Procedure	Program Code			Challenges/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

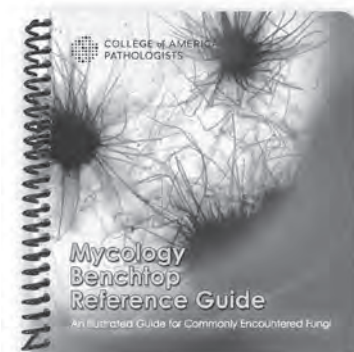
## Find fungi fast

- Easy-to-use reference for confident identification
- Portable (6½" x 7")
- Durable, water-resistant laminated format to withstand years of benchtop use

**Choose code MBRG on your Surveys order form.**

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- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



**Item number: MBRG**  
Spiral bound; 92 pages;  
70+ images; 2013

# 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	Program Code			
	P	P3	P4	P5
<b>Fecal suspension (wet mount)</b>	■	■	■	
<b>Fecal suspension (<i>Giardia</i> and/or <i>Cryptosporidium</i> immunoassay and modified acid-fast stain)</b>	■	■	■	■
<b>Giemsa-stained blood smear</b>	■			
<b>Preserved slide (for permanent stain)</b>	■		■	

## Additional Information

- The proficiency testing materials used for the Parasitology Surveys contain formalin as a preservative.
- Modified acid-fast stain results do not meet CLIA requirements for parasite identification.

## 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/or *Cryptosporidium* immunoassay testing and 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/or *Cryptosporidium* immunoassay testing and 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/or *Cryptosporidium* immunoassay testing and modified acid-fast stain
- P5 - Five 0.75-mL fecal suspensions for *Giardia* and/or *Cryptosporidium* immunoassay testing and modified acid-fast stain
- Three shipments per year



### Blood Parasite BP

Procedure	Program Code	Challenges/Shipment
	BP	
Thin/thick blood film sets*	■	5

\*This Survey will include corresponding thick films when available.

#### Program Information

- Five Giemsa-stained blood film sets, photographs, and/or online images
- A variety of blood parasites, including *Plasmodium*, *Babesia*, *Trypanosoma*, and filarial worms
- Three shipments per year

### Rapid Malaria RMAL

Procedure	Program Code	Challenges/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

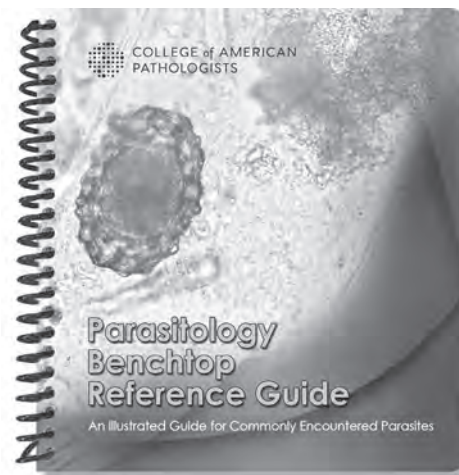
## Parasitology Benchtop Reference Guide (PBRG)

- More than 70 identifications for parasites commonly encountered in the clinical laboratory
- Detailed descriptions of the parasite morphology, ecology, and clinical significance
- Color images of microscopic morphologies using routine parasitology stains and preparations
- Color images of macroscopic worms routinely submitted to the clinical laboratory
- Five tabbed sections for easy reference
  - Blood Parasites
  - Intestinal Protozoa
  - Intestinal Helminths
  - Miscellaneous Specimens
  - Macroscopic Worms
- A durable and water-resistant format to withstand years of benchtop use—6½" x 7"

**Choose code PBRG on your Surveys order form.**

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- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



**NEW****Expanded Parasitology PEX**

Procedure	Program Code	Challenges/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/Shipment
	TMO	
Tick, mite, and arthropod identification	■	3

**Program Information**

- Three images, each available as photographs and online images
- Two shipments per year

***Trichomonas vaginalis*, Molecular TVAG**

Analyte	Program Code	Challenges/Shipment
	TVAG	
<i>Trichomonas vaginalis</i>	■	3

**Program Information**

- Three liquid specimens
- Designed for molecular techniques
- Two shipments per year

**Worm Identification WID**

Procedure	Program Code	Challenges/Shipment
	WID	
Worm identification	■	3

**Program Information**

- Three images, each available as photographs and online images
- Two shipments per year

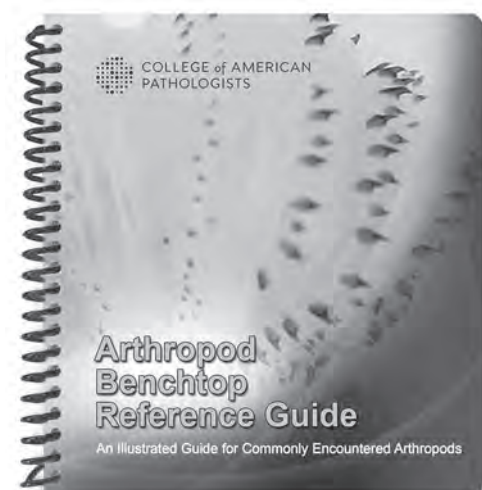
**Arthropod Benchtop Reference Guide (ABRG)**

- Numerous identifications of ectoparasites commonly encountered in the clinical laboratory
- Detailed descriptions of the most significant morphologic elements, ecology, and clinical significance
- A durable and water-resistant format to withstand years of benchtop use—6½" x 7"

**Choose code ABRG on your Surveys order form.**

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# Virology and Molecular Microbiology Testing

Use this flowchart as a guide for ordering the appropriate Virology and Molecular Microbiology Surveys for your laboratory's testing menu. For the subspecialty of virology, you 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.

## Virology

Do you perform any of the following virology testing?  
 ■ virology culture  
 ■ virology antigen testing  
 ■ virology antibody testing

↓ YES

For Comprehensive Virology Culture Testing → Select **VR1**

For Virology Antigen Testing by Immunofluorescence → Select **VR2**

For Viral Serology Testing → Select **VR3/VR3M**

For Virology Antigen by EIA or Latex Agglutination → Select **VR4**

For Herpes Simplex Virus Antigen Detection by DFA → Select **HC2**

For Herpes Simplex Virus Culture Testing → Select **HC4**

## Molecular Microbiology

Do you perform molecular testing on Chlamydia or GC only?

↓ YES

Select from the following Surveys:  
 ■ **HC6, HC6X, HC7**  
*Chlamydia/ GC Nucleic Acid Amplification*

Do you perform nucleic acid amplification other than GC?

↓ YES

Select from the following Surveys:  
 ■ **IDO, ID1, ID1T, ID2, IDN**  
 Nucleic Acid Amplification  
 ■ **BSTS**  
 Bacterial Strain Typing  
 ■ **BOR**  
*Bordetella pertussis/ parapertussis*  
 ■ **CDF5**  
*C. difficile* Detection  
 ■ **TVAG**  
*Trichomonas vaginalis*  
 ■ **VBDM**  
 Zika

Do you perform viral load testing only?

↓ YES

Select from the following Surveys:  
 ■ **HV2**  
 HIV Viral Load  
 ■ **HCV2, HBVL, HBVL5**  
 Hepatitis Viral Load  
 ■ **VLS, VLS2**  
 Viral Load

Do you perform molecular multiplexing?

↓ YES

Select from the following Surveys:  
 ■ **ID3**  
 Influenza A, Influenza B, RSV by NAA  
 ■ **IDME**  
 Meningitis/ Encephalitis Panel  
 ■ **IDR**  
 Infectious Disease Respiratory Panel  
 ■ **GIP**  
 Gastro-intestinal Panel  
 ■ **GNBC, GPBC**  
 Blood Culture Panels



# Virology

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

## Virology Culture VR1

Procedure	Program Code	Challenges/Shipment
	VR1	
<i>Chlamydia trachomatis</i> culture	■	1
<b>Viral isolation/identification</b>	■	5
Educational challenge	■	1 per year

### 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/Shipment		
		A	B	C
	VR2			
<b>Adenovirus antigen</b>	■	1	1	
<b>Cytomegalovirus antigen</b>	■	1	1	
<b>Herpes simplex virus (HSV) antigen</b>	■		1	1
<b>Influenza A antigen</b>	■	1		1
<b>Influenza B antigen</b>	■		1	
<b>Parainfluenza antigen</b>	■	1		1
<b>Respiratory syncytial virus (RSV) antigen</b>	■	1		1
<b>Varicella-zoster antigen</b>	■		1	1
Educational challenge	■	1		

### Program Information

- Five 5-well slide specimens
- Three shipments per year



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

### Virology Antigen Detection (Non-DFA) VR4

Analyte	Program Code	Challenges/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
- Three shipments per year

### Herpes Simplex Virus HC2, HC4

Procedure	Program Code		Challenges/Shipment
	HC2	HC4*	
Antigen detection (DFA)	■		5
Culture		■	5

\*The biohazard warning applies to Survey HC4.

#### Program Information

- HC2 - Five 5-well slide specimens
- HC4 - Five 0.5-mL lyophilized specimens
- Three shipments per year



## Test your diagnostic skills as a pathologist with CPIP

Online, hands-on and interactive, the Clinical Pathology Improvement Program (CPIP) enables pathologists to sharpen their diagnostic skills in real time by working through an actual case. Each month, you will receive a new scenario, including slide images and clinical background. As the case unfolds, more information is revealed, just as in the laboratory. Participants who successfully complete the posttest may apply their earned credits to their MOC SAM requirements. Enjoy a full year of CPIP and earn up to 15 CME/SAM credits.

**Choose code CPIP/CPIP1 on your Surveys order form.**



Refer to the Ordering Information provided for information regarding additional dangerous goods and related fees.

## Molecular Microbiology

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

### Hepatitis Viral Load HCV2, HBVL, HBVL5

Procedure	Challenges/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 1.25-mL plasma specimens; two shipments per year
- HBVL5 - Five 2.0-mL plasma specimens; three shipments per year

### HIV Viral Load HV2, HIVG

Procedure	Program Code		Challenges/Shipment
	HV2	HIVG	
HIV-RNA viral load	■		5
HIV genotyping		■	1

#### Program Information

- HV2 - Five 2.5-mL plasma specimens
- HIVG - One 1.0-mL plasma specimen
- Three shipments per year

### Viral Load VLS, VLS2

Procedure	Program Code		Challenges/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			Target Ranges
	LN38*	LN39	LN45	
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 Survey LN38.

LN Express service is available.

### 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 plasma specimens
- Two shipments per year; ships on dry ice (dry ice does not apply to LN39)

## C. trachomatis/GC by NAA HC6, HC6X, HC7

Procedure	Program Code		Challenges/Shipment
	HC6,* HC6X*	HC7	
Nucleic acid amplification (NAA)	■		5
Nucleic acid amplification (NAA/DNA)		■	5

\*The biohazard warning applies to Surveys HC6 and HC6X.

### Program Information

- HC6 - Three swab specimens and two 1.0-mL simulated urine specimens
- HC6X - Three swab specimens; two 1.0-mL 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.

## Human Papillomavirus HPV

Analyte	Program Code	Challenges/Shipment
	HPV	
Human papillomavirus	■	2

For laboratories using Digene, SurePath, and/or ThinPrep collection media, see page 274.

### Program Information

- Two simulated cervical specimens contained in Digene transport media
- For Digene Hybrid Capture only
- Two shipments per year

## Bacterial Strain Typing, *Staphylococcus* BSTS

Analyte	Program Code	Challenges/Shipment
	BSTS	
<i>Staphylococcus</i>	■	2

### Program Information

- Two sets of loops with diluents
- Two shipments per year



## Vector-Borne Disease—Molecular VBDM

**NEW**

Analyte	Program Code	Challenges/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.

### Nucleic Acid Amplification, Organisms IDO, IDN

Analyte/Procedure	Program Code		Challenges/Shipment
	IDO	IDN	
<i>Bordetella pertussis/parapertussis</i>	■	■	1
<i>Legionella pneumophila/Chlamydophila pneumoniae*</i>	■	■	1
Methicillin-resistant <i>Staphylococcus aureus</i>	■	■	1
Molecular typing (bacterial isolates)	■	■	1
<i>Mycobacterium tuberculosis</i>	■		1
<i>Mycoplasma pneumoniae</i>	■	■	1
Vancomycin-resistant <i>Enterococcus</i>	■	■	1

\**Legionella pneumophila/Chlamydophila pneumoniae* will be included in the following shipments:

- Shipment A: *Chlamydophila 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



### Nucleic Acid Amplification, Viruses ID1, ID1T

Analyte	Program Code		Challenges/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.

## Nucleic Acid Amplification, Respiratory ID2

Analyte	Program Code	Challenges/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
- Shipment B: Rhinovirus and Influenza B

### Program Information

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

## Influenza A, Influenza B, and RSV by Nucleic Acid Amplification ID3

Analyte	Program Code	Challenges/Shipment
	ID3	
Influenza A	■	5
Influenza B	■	5
Respiratory syncytial virus (RSV)	■	5

### Program Information

- Five 1.0-mL liquid specimens
- Designed for molecular multiplex panel users
- Three shipments per year

### Meningitis/Encephalitis Panel IDME

Analyte	Program Code	Challenges/Shipment
	IDME	
<i>Escherichia coli</i> K1	■	3
<i>Haemophilus influenzae</i>	■	3
<i>Listeria monocytogenes</i>	■	3
<i>Neisseria meningitidis</i>	■	3
<i>Streptococcus agalactiae</i>	■	3
<i>Streptococcus pneumoniae</i>	■	3
Cytomegalovirus (CMV)	■	3
Enterovirus	■	3
Herpes simplex virus 1 (HSV-1)	■	3
Herpes simplex virus 2 (HSV-2)	■	3
Human herpesvirus 6 (HHV-6)	■	3
Human parechovirus	■	3
Varicella-zoster virus (VZV)	■	3
<i>Cryptococcus neoformans/gattii</i>	■	3

#### Program Information

- Three 1.0-mL liquid specimens
- Designed for molecular multiplex panel users
- Two shipments per year

### Infectious Disease, Respiratory Panel IDR

Analyte	Program Code	Challenges/Shipment
	IDR	
<b>Adenovirus</b>	■	5
Bocavirus	■	5
<i>Bordetella (pertussis, parapertussis, bronchiseptica, holmesii)</i>	■	5
<i>Chlamydomphila pneumoniae</i>	■	5
Coronavirus	■	5
Human metapneumovirus	■	5
Influenza A	■	5
Influenza B	■	5
<i>Legionella pneumophila</i>	■	5
<i>Mycoplasma pneumoniae</i>	■	5
Parainfluenza	■	5
Parainfluenza 4	■	5
Respiratory syncytial virus (RSV)	■	5
Rhinovirus/Enterovirus	■	5

#### Program Information

- Five 1.0-mL liquid specimens
- Designed for molecular multiplex panel users
- Three shipments per year



## Gastrointestinal Panel GIP

Analyte	Program Code		Challenges/Shipment
	GNBC	GPBC	
	GIP		
Adenovirus <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
Astrovirus <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
<i>Campylobacter</i>	■		3
<i>Clostridium difficile</i> , toxin A/B	■		3
<i>Cryptosporidium</i>	■		3
<i>Cyclospora cayatanensis</i> <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
Enterohaggardive <i>E. coli</i> (EAEC) <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
Enteropathogenic <i>E. coli</i> (EPEC) <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
Enterotoxigenic <i>E. coli</i> (ETEC) LT/ST	■		3
<i>Entamoeba histolytica</i>	■		3
<i>Escherichia coli</i> O157	■		3
<i>Giardia</i>	■		3
Norovirus GI/GII	■		3
<i>Plesiomonas shigelloides</i> <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
Rotavirus A	■		3
<i>Salmonella</i>	■		3
Sapovirus <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
Shiga-like toxin producing <i>E. coli</i> (STEC) stx1/stx2	■		3
<i>Shigella</i>	■		3
Shigella/Enteroinvasive <i>E. coli</i> (EIEC)	■		3
<i>Vibrio cholerae</i> <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3
<i>Yersinia enterocolitica</i> <span style="background-color: #00a0c0; color: white; border-radius: 50%; padding: 2px;">NEW</span>	■		3

### Program Information

- Three 1.0-mL simulated stool specimens
- Designed for molecular multiplex panel users
- Not available to international customers due to United States export law restrictions
- Two shipments per year

## Blood Culture Panel GNBC, GPBC

Procedure	Program Code		Challenges/Shipment
	GNBC	GPBC	
Identification of gram-negative organisms such as <i>Acinetobacter</i> , <i>Citrobacter</i> , <i>Enterobacter</i> , <i>Proteus</i> , <i>Haemophilus</i> , <i>Klebsiella</i> , <i>Neisseria</i> , <i>Pseudomonas</i> , <i>Serratia</i> , <i>E. coli</i> , and common resistance mechanisms isolated from positive blood culture bottles	■		3
Identification of gram-positive organisms such as <i>Staphylococcus</i> , <i>Streptococcus</i> , <i>Enterococcus</i> , <i>Listeria</i> , and common resistance mechanisms isolated from positive blood culture bottles		■	3

These Surveys are not for the inoculation of blood culture bottles.

### Program Information

- Three 1.0-mL liquid simulated blood culture fluid specimens
- For laboratories using molecular multiplex panels
- Two shipments per year

# 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/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
<i>Helicobacter pylori</i> – IgG, IgA, and total antibodies	■		1
Herpes simplex virus (HSV) – IgG antibody	■		1
<i>Mycoplasma pneumoniae</i> – IgG, IgM, and total antibodies	■		1
Mumps – IgG		■	1
Rubeola virus (English measles) – IgG antibody	■		1
<i>Toxoplasma gondii</i> – IgG, IgM, and total antibodies	■		1
Varicella-zoster virus – IgG and total antibodies	■		1

**Program Information**

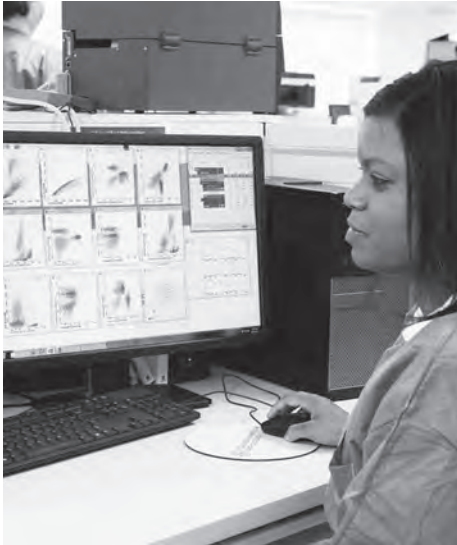
- VR3 - Eight 0.5-mL lyophilized defibrinated plasma specimens
- VR3M - One 0.5-mL lyophilized defibrinated plasma specimen
- Two shipments per year

Tick-Transmitted Diseases TTD			
Analyte	Program Code		Challenges/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

# 16 Immunology and Flow Cytometry



## Immunology and flow cytometry testing is changing at a rapid pace—so is our proficiency testing.

Introducing three new programs for 2018:

- Testing of alpha-2-macroglobulin to evaluate patients with pancreatitis and nephrotic syndrome (A2MG)
- Detecting plasma cell neoplasms by flow cytometry (PCNEO)
- Testing for minimal residual disease by flow cytometry utilizing in silico challenges (BALL)

## Immunology and Flow Cytometry

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## New Programs **NEW**

Alpha-2-Macroglobulin (A2MG).....	204
Flow Cytometry—B-ALL Minimal Residual Disease (BALL) .....	210
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## Discontinued Programs

Heavy Chain/Light Chain Analysis (HCA)

# 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/ Shipment
	ANA	ASO	CRP	HCG	IM	RF/ RFX	RUB/ RUBX	IL	
<b>Antinuclear antibody (ANA)*</b>	■							■	5
Antinuclear antibody ANA dry challenge	■							■	1
<b>Antistreptolysin O (ASO)*</b>		■						■	5
C-reactive protein, qualitative/quantitative			■					■	2
<b>hCG, serum (qualitative/quantitative)</b>				■				■	5
<b>Infectious mononucleosis</b>					■			■	5
<b>Rheumatoid factor*</b>						■		■	5
<b>Rubella (IgG)*</b>							■	■	5

\*Antinuclear antibody, Antistreptolysin O, Rheumatoid factor, and Rubella are regulated analytes and are graded for both qualitative and quantitative methods. Semiquantitative and/or titer results for these analytes are ungraded/educational in this Survey and do not meet regulatory requirements.

### Program Information

- ANA and RUB - Five 0.5-mL serum specimens
- ANA - Three educational pattern interpretation dry challenges per year
- ASO, HCG, and 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 Survey RF specimens in duplicate
- RUBX - All Survey RUB specimens in duplicate
- IL - All immunology specimens except RFX and RUBX
- Three shipments per year



## Immunology, General IG/IGX

Analyte	Program Code		Challenges/shipment
	IG/IGX		
<b>Alpha<sub>1</sub>-antitrypsin</b>	■		5
<b>Complement C3</b>	■		5
<b>Complement C4</b>	■		5
Haptoglobin	■		5
<b>IgA</b>	■		5
<b>IgE</b>	■		5
<b>IgG</b>	■		5
<b>IgM</b>	■		5
Total kappa/lambda ratio	■		5

### Program Information

- IG - Ten 1.0-mL serum specimens
- IGX - All Survey IG specimens in duplicate
- Three shipments per year



## Immunology, Special; Immunology Special, Limited; and *H. pylori* IgG Antibody S2, S4, S5

Analyte	Program Code			Challenges/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-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
<i>Helicobacter pylori</i> , 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

Survey S2 is not appropriate for antimitochondrial antibody assays that are specific for the M2 antibody. Refer to Survey H on page 204.

### Program Information

- S2 - A minimum of seven (0.5- to 1.0-mL/vial) serum specimens
- S4 - A minimum of three (0.5- to 1.0-mL/vial) serum specimens
- S2 and S4 - Three shipments per year
- S5 - Two 1.0-mL serum specimens; two shipments per year



## Infectious Mononucleosis, Waived IMW

Analyte	Program Code	Challenges/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/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/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/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/Shipment
	AHT	
Antihistone antibody	■	3

**Program Information**

- Three 0.5-mL serum specimens
- Two shipments per year

### Antimitochondrial M2 Antibody H

Analyte	Program Code	Challenges/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/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/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/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

#### Program Information

- Three 0.5-mL lyophilized serum specimens
- Two shipments per year

### Antiribosomal P Antibody ARP

Analyte	Program Code	Challenges/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/Shipment
	ASC	
Anti- <i>Saccharomyces cerevisiae</i> 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/ 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 Survey CES specimens in triplicate
- Two shipments per year

### Cyclic Citrullinated Peptide Antibody (Anti-CCP) CCP

Analyte	Program Code	Challenges/ Shipment
	CCP	
Anti-CCP	■	2

#### Program Information

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



### Cytokines CTKN

Analyte	Program Code	Challenges/ 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

- Nine 2.0- to 3.0-mL lyophilized serum specimens
- Two shipments per year



### Diagnostic Allergy SE

Analyte/Procedure	Program Code	Challenges/Shipment
	SE	
IgE, multiallergen screen, qualitative	■	5
<b>IgE, total</b>	■	5
Specific allergens	■	25
Educational challenges	■	2 per year

#### 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 HSCR

Analyte	Program Code	Challenges/Shipment
	HSCR	
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/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/Shipment
	QF	
<i>M. tuberculosis</i>	■	2

#### Program Information

- Two 1.0-mL lyophilized specimens and one lyophilized mitogen control
- For use with the QuantiFERON®-TB Gold and Gold Plus methods only
- Two shipments per year

### Rheumatic Disease Special Serologies RDS

Analyte	Program Code	Challenges/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



### Syphilis Serology G

Analyte	Program Code	Challenges/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 Survey.

#### Program Information

- Five 1.5-mL serum specimens
- Three shipments per year



### Total Hemolytic Complement CH50

Analyte	Program Code	Challenges/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/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/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

## 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/Shipment
	FL	FL1	FL2	
DNA content and cell cycle analysis	■		■	3
Lymphocyte immunophenotyping	■	■		3

These Surveys 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 Survey FL1 and FL2 specimens
- Three shipments per year

### Flow Cytometry—Immunophenotypic Characterization of Leukemia/Lymphoma FL3

Procedure	Program Code		Challenges/Shipment
	FL3		
Leukemia/lymphoma	■		2

#### Program Information

- Two 2.5-mL whole blood specimens and/or cell lines simulating leukemia/lymphoma; images of tissue sections, bone marrow, and/or peripheral blood smears with clinical histories
- Online whole slide images powered by DigitalScope® technology
- Two shipments per year

### Flow Cytometry, CD34+ FL4

Analyte	Program Code		Challenges/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/Shipment
	FL5	
Flow cytometry, interpretation only of leukemia/lymphoma	■	3

Survey FL5 is for laboratories that receive flow cytometry analyses from referring laboratories to perform the interpretation of patient results.

### Program Information

- Three 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
- Online whole slide images powered by DigitalScope technology
- Two shipments per year

## Flow Cytometry—B-ALL Minimal Residual Disease BALL

**NEW**

Analyte	Program Code	Challenges/Shipment
	BALL	
B-ALL minimal residual disease	■	3

Survey BALL is intended for laboratories that currently or will begin to perform minimal residual disease testing (rare event analysis) for B lymphoblastic leukemia/lymphoma. The cases presented will be based on Children's Oncology Group (COG) approved B-ALL MRD method.

### Minimum Requirements

- For ungated list mode files, each challenge will include 2-3 “virtual tubes” performed by a 6-color method. The participant will download the files from a CAP website and analyze the data on a MAC or PC using standard software, including FlowJo, FACSDiva, Kaluza, Woodlist, etc. The files will be large as each tube will have collected hundreds of thousands of events. Boolean gating will be necessary to see if there is an atypical population.

### Program Information

- Two cases consisting of gated dot plots, clinical histories, pertinent laboratory data, and digital images (included for pertinent cases)
- One case with clinical history, pertinent laboratory data, digital images, and ungated list mode files; allows users to examine gating strategies and interpret antibody staining patterns; files are in standard format (see Minimum Requirements)
- Online whole slide images powered by Digital Scope technology, if applicable
- Two shipments per year

NEW

## Flow Cytometry—Plasma Cell Neoplasms PCNEO

Analyte	Program Code	Challenges/Shipment
	PCNEO	
Plasma cell neoplasms	■	3

Survey PCNEO is especially helpful for laboratories that have leukemia/lymphoma assays that target plasma cell neoplasms, including cytoplasmic light chain staining.

### Program Information

- One 2.5-mL whole blood specimen and/or cell line simulating a plasma cell neoplasm with clinical history and pertinent laboratory data
- Two cases consisting of gated dot plots, clinical histories, and pertinent laboratory data
- Each challenge includes images of tissue sections, bone marrow, and/or peripheral blood smears
- Online whole slide images powered by DigitalScope technology
- Two shipments per year

## Flow Cytometry—Immunophenotypic Characterization of Paroxysmal Nocturnal Hemoglobinuria PNH

Analyte	Program Code	Challenges/Shipment
	PNH	
PNH RBC analysis	■	2
PNH WBC analysis	■	2

### Additional Information

- The PNH Survey 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 Survey is appropriate for high-sensitivity testing ( $\leq 0.01\%$  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/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

Analyte	Program Code		Challenges/Shipment
	RFAV1	RFAV2	
CD1a	■		1
CD103		■	1

Surveys RFAV1 and RFAV2 do not meet the regulatory requirements for proficiency testing.

#### Additional Information

These Surveys meet the CAP Accreditation Checklist item FLO.23737, which requires semiannual testing of antigens.

#### Program Information

- RFAV1 - One 4.5-mL cell line specimen
- RFAV2 - One 1.0-mL stabilized cell specimen
- Two shipments per year

### ZAP-70/CD49d Analysis by Flow Cytometry ZAP70

Analyte	Program Code		Challenges/Shipment
	ZAP70		
Zeta chain-associated protein kinase 70	■		3
CD49d	■		3

#### Additional Information

- This Survey 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 Survey allows assessment of the laboratory's ability to detect CD49d.

#### Program Information

- Three 4.5-mL cell line specimens
- Two shipments per year

# 17 Transfusion Medicine, Viral Markers, and Parentage Testing



## Utilize 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 discussions to further educate staff on testing trends and best practices.
- Earn continuing education (CE) credit with content that aligns with the proficiency testing challenge.

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## New Programs

**NEW**

Vector-Borne Disease—Molecular (VBDM) .....	226
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## 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/Shipment
	J	J1	
<b>ABO grouping</b>	■	■	5
<b>Rh typing</b>	■	■	5
<b>Antibody detection</b>	■		5
<b>Antibody identification</b>	■		5
<b>Compatibility testing</b>	■		5
Red blood cell antigen typing	■		1

#### Program Information

- J - Five 2.0-mL 3%–4% red blood cell suspensions; five 3.0-mL corresponding serum specimens; one 2.0-mL donor red blood cell suspension
- J1 - Five 2.0-mL 3%–4% red blood cell suspensions; five 3.0-mL corresponding serum specimens
- Three shipments per year



### Transfusion Medicine—Educational Challenge JE1

Procedure	Program Code		Challenges/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 Survey J
- Three shipments per year





## Electronic Crossmatch EXM

Procedure	Program Code	Challenges/Shipment
	EXM	
Electronic crossmatch	■	3

Survey 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 Survey J
- Two shipments per year



## Transfusion Medicine—Automated JAT

Procedure	Program Code	Challenges/Shipment
	JAT	
ABO grouping	■	5
Antibody detection	■	5
Antibody identification	■	5
Compatibility testing	■	5
Rh typing	■	5

### Program Information

- Five bar-coded 4.0-mL 18%–20% whole blood specimens and one 4.0-mL 18%–20% whole blood specimen for compatibility testing
- Three shipments per year



## Transfusion Medicine—Automated Education Challenge JATE1

Procedure	Program Code	Challenges/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 Survey JAT
- Three shipments per year



### Electronic Crossmatch, Automated EXM2

Procedure	Program Code	Challenges/Shipment
	EXM2	
Electronic crossmatch	■	3

Survey 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 Survey JAT
- Two shipments per year



### ABO Subgroup Typing ABOSG

Procedure	Program Code	Challenges/Shipment
	ABOSG	
ABO subgroup typing	■	3
Rh typing	■	3

#### Program Information

- Three 2.0-mL 3%–4% 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/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/Shipment
	RBCAT	
Red blood cell antigen typing	■	2

### Additional Information

Survey 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

## Antibody Titer ABT, ABT1, ABT2, ABT3

Procedure	Program Code				Challenges/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

### Transfusion-Related Cell Count TRC

Procedure	Program Code	Challenges/Shipment
	TRC	
Platelet count (platelet-rich plasma)	■	5
WBC count	■	4
Dry 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/Shipment
	DAT	
Direct antiglobulin testing	■	3

#### Program Information

- Three 2.0-mL 3%–4% red blood cell suspensions
- For use with manual method
- Two shipments per year

### Eluate Survey ELU

Procedure	Program Code	Challenges/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/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/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/Shipment
	TMCA	
ABO grouping	■	2
Antibody detection	■	2
Antibody identification	■	2
Compatibility testing	■	2
Rh typing	■	2

Survey TMCA does not meet the regulatory requirements for proficiency testing.

#### Program Information

- Two 2.0-mL 3%–4% red blood cell suspensions
- Two 3.0-mL corresponding serum specimens
- One 2.0-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/Shipment
	TMCAD	
Direct antiglobulin testing	■	2

Survey TMCAD does not meet the regulatory requirements for proficiency testing.

#### Program Information

- Two 2.0-mL 3%–4% red blood cell suspensions
- Two shipments per year; order shipments individually or for an entire year

### Eluate Competency Assessment TMCAE

Procedure	Program Code	Challenges/Shipment
	<b>TMCAE</b>	
Antibody elution	■	2

Survey 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/Shipment
	<b>TMCAF</b>	
Kleihauer-Betke, flow cytometry	■	2
Rosette fetal screen	■	2
Acid elution whole slide image	■	1

Survey 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

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## Cord Blood and Stem Cell Processing CBT, SCP

Procedure	Program Code		Challenges/Shipment
	CBT	SCP	
Absolute CD3		■	2
Absolute CD34	■	■	2
Absolute CD45	■		2
Bacterial culture	■	■	2
%CD3+		■	2
%CD34+	■	■	2
%CD45+	■	■	2
BFU-E	■	■	2
CFU-E	■	■	2
CFU-GEMM	■	■	2
CFU-GM	■	■	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.
- 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/Shipment
	BDP	BDP5	
Bacterial culture and detection systems	■		2
<b>Bacterial culture and detection systems</b>		■	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.
- Survey 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.
- Survey 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.

**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/Shipment	
	Program Code	
	BDPV	BDPV5
<b>CMS certified Rapid immunoassay</b>	2	5

**Additional Information**

- The Centers for Medicare & Medicaid Services (CMS) requires proficiency testing for bacterial detection in platelets.
- Survey 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.
- Survey 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/Shipment
	ETME1	
Expanded challenges	■	2

### Additional Information

Survey 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

- ETME1 - One paper challenge and one wet challenge consisting of a serum specimen(s) and/or red blood cell suspensions
- Two shipments per year

## Make critical transfusion decisions with confidence

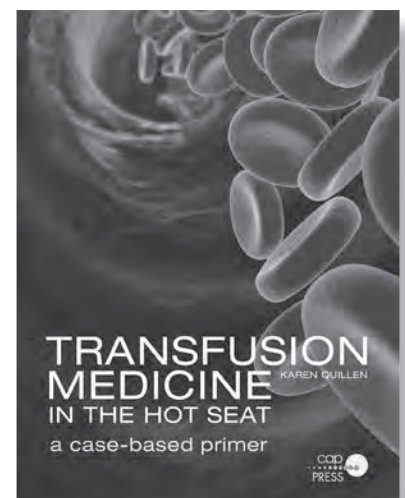
*Transfusion Medicine in the Hot Seat* is a valuable educational resource for pathology trainees and pathologists practicing transfusion medicine. The text presents a total of 26 realistic transfusion scenarios divided into three sections:

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Softcover; 123 pages

## 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/Shipment
	VM1	
Anti-HAV (total: IgM and IgG)	■	5
Anti-HAV (IgG)	■	5
<b>Anti-HBc (total: IgM and IgG)</b>	■	5
Anti-HBs	■	5
Anti-HBs, quantitative	■	5
Anti-HCV	■	5
<b>Anti-HIV-1</b>	■	5
<b>Anti-HIV-1/2</b>	■	5
Anti-HIV-2	■	5
<b>HBsAg</b>	■	5

Do not use Survey VM1 with rapid anti-HCV, anti-HIV-1, or anti-HIV-1/2 kits. See page 225 for Surveys appropriate for rapid methods.

#### Program Information

- Five 3.5-mL plasma specimens
- Three shipments per year

### Viral Markers—Series 2 VM2

Analyte	Program Code	Challenges/Shipment
	VM2	
Anti-HBe	■	5
<b>HBeAg</b>	■	5

#### Program Information

- Five 3.5-mL plasma specimens
- Three shipments per year

### Viral Markers—Series 3 VM3

Analyte	Program Code	Challenges/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/Shipment
	VM4	
Anti- <i>Trypanosoma cruzi</i> (Chagas disease)	■	2

#### Program Information

- Two 1.0-mL plasma specimens
- Two shipments per year

### Viral Markers—Series 5 VM5

Analyte	Program Code	Challenges/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

Analyte	Program Code	Challenges/Shipment
	VM6	
Anti-HIV-1/2	■	5
HIV-1 p24 antigen	■	5

#### Program Information

- Five 0.5-mL plasma specimens
- For use with methods such as the Abbott ARCHITECT HIV Combo, Bio-Rad GS HIV Combo, and Alere Determine HIV Combo assays
- Three shipments per year

### Anti-HIV 1/2 AHIV, AHIVW

Analyte/Procedure	Program Code		Challenges/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 RHCW

Analyte/Procedure	Program Code	Challenges/Shipment
	RHCW	
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/Shipment
	NAT	
HBV	■	5
HCV	■	5
HIV	■	5
West Nile virus	■	5

### Program Information

- Five 6.0-mL plasma specimens
- 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

NEW

Analyte	Program Code	Challenges/Shipment
	VBDM	
Zika virus	■	3

### Program Information

- Three 1.5-mL liquid specimens
- Two shipments per year

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# Parentage Testing

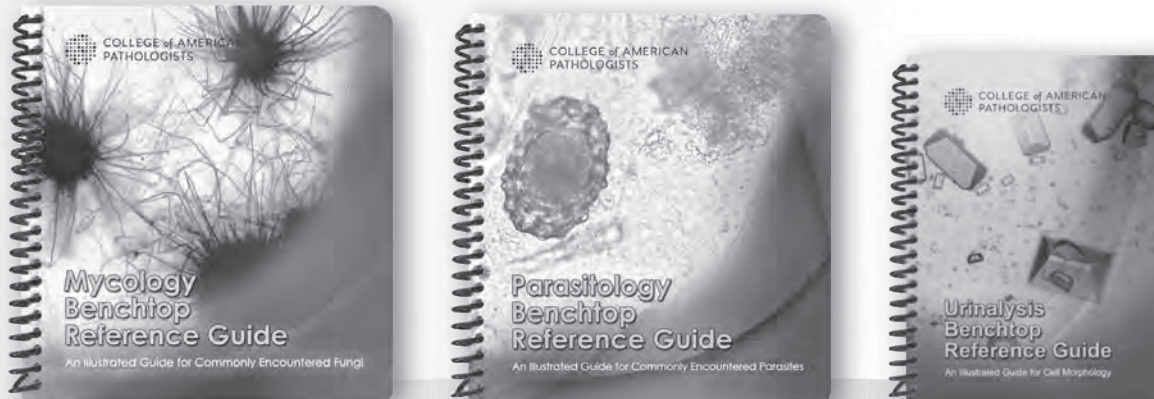
## Parentage/Relationship Test—Filter Paper PARF

Analyte/Procedure	Program Code	Challenges/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), Y-STRs, as well as the conclusions provided
- Three shipments per year

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**GSBRG** Gram Stain Benchtop Reference Guide

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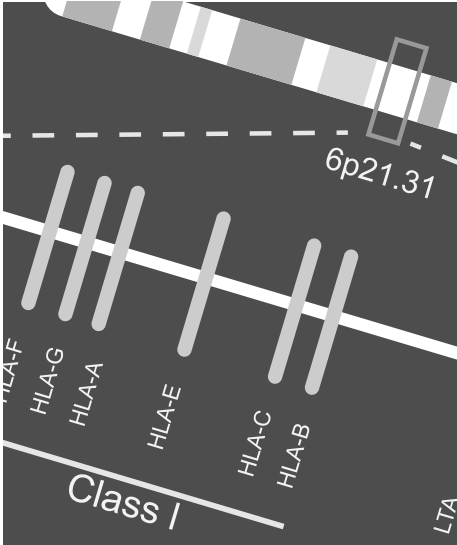
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# 18 Histocompatibility



**CAP laboratory accreditation checklists are updated annually to keep you current with changes in laboratory medicine.**

Updates in the 2017 Histocompatibility Checklist requirements help you comply with:

- United Network for Organ Sharing (UNOS) bylaws
- Foundation for the Accreditation of Cellular Therapy (FACT) standards
- CLIA regulations

## New Analyte/Drug Additions NEW

HLA Disease Association-Drug Risk (DADR1, DADR2) .....	233
DQA1*02	
DQA1*03	
DQA1*05	
DQB1*02:01	
DQB1*02:02	

## Discontinued Programs

- HLA Molecular Typing (ML, DL)
- HLA Serologic Typing (Class I/II) (ABO, HLAS, HLAS1)

## 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) **MX1B, MX1C, MX1E**

Procedure	Program Code			Challenges/Shipment
	<b>MX1B</b>	<b>MX1C</b>	<b>MX1E</b>	
Crossmatching	■	■		8
Antibody screen	■	■	■	4
Antibody identification	■	■	■	4

#### Additional Information

Blood donor screening is now a reporting option for antibody screening results. This change covers the use of HLA testing in blood centers/hospital laboratories for the purpose of donor qualification.

#### Program Information

- MX1B - Four 0.25-mL plasma specimens; two (approximately  $1.0 \times 10^6$  cells) purified peripheral blood lymphocyte specimens
- MX1C - Four 0.50-mL plasma specimens; two (approximately  $4.0 \times 10^6$  cells) purified peripheral blood lymphocyte specimens
- MX1E - Four 0.30-mL plasma specimens; must be ordered in conjunction with Survey MX1B or MX1C
- Three shipments per year

### HLA Crossmatching, Antibody Screen, and Antibody Identification (Class II) **MX2B, MX2C, MX2E**

Procedure	Program Code			Challenges/Shipment
	<b>MX2B</b>	<b>MX2C</b>	<b>MX2E</b>	
Crossmatching	■	■		4
Antibody screen	■	■	■	2
Antibody identification	■	■	■	2

#### Additional Information

Blood donor screening is now a reporting option for antibody screening results. This change covers the use of HLA testing in blood centers/hospital laboratories for the purpose of donor qualification.

#### Program Information

- MX2B - Two 0.25-mL plasma specimens; two (approximately  $7.2 \times 10^6$  cells) purified peripheral blood lymphocyte specimens
- MX2C - Two 0.50-mL plasma specimens; two (approximately  $9.6 \times 10^6$  cells) purified peripheral blood lymphocyte specimens
- MX2E - Two 0.30-mL plasma specimens; must be ordered in conjunction with Survey MX2B or MX2C
- Three shipments per year

For laboratories conducting BOTH Class I and Class II HLA testing, see next page.



## HLA Crossmatching, Antibody Screen, and Antibody Identification (Class I/II) Combinations MXB, MXC

Procedure	Corresponding Survey	Program Code	
		MXB	MXC
Crossmatching, antibody screen, and antibody identification (Class I)	MX1B*	■	
Crossmatching, antibody screen, and antibody identification (Class II)	MX2B*	■	
Crossmatching, antibody screen, and antibody identification (Class I)	MX1C*		■
Crossmatching, antibody screen, and antibody identification (Class II)	MX2C*		■

\*See page 230 for specimen and analyte information.

### Program Information

- MXB - Class I: four 0.25-mL plasma specimens, two purified peripheral blood lymphocyte specimens; Class II: two 0.25-mL plasma specimens, two purified peripheral blood lymphocyte specimens
- MXC - Class I: four 0.50-mL plasma specimens, two purified peripheral blood lymphocyte specimens; Class II: two 0.50-mL plasma specimens, two purified peripheral blood lymphocyte specimens
- Three shipments per year

## Class I & II HLA Molecular Typing DML

Procedure	Program Code	Challenges/Shipment
	DML	
Molecular HLA-A, -B, and -C typing (Class I)	■	5
Molecular HLA-DR, -DQ, and -DP typing (Class II)	■	5

### Program Information

- Ten approximately 1.0-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/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/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

### Monitoring Engraftment ME

Procedure	Program Code	Challenges/Shipment
Stem cell monitoring engraftment	■	3

#### Program Information

- Five 1.0-mL whole blood specimens
- Designed for laboratories supporting stem cell transplant and laboratories monitoring chimerism after organ transplantation
- Three shipments per year

## HLA Disease Association–Drug Risk DADR1, DADR2

Analyte	Program Code		Challenges/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
DQA1*02 <b>NEW</b>		■	3
DQA1*03 <b>NEW</b>		■	3
DQA1*05 <b>NEW</b>		■	3
DQB1*02:01 <b>NEW</b>		■	3
DQB1*02:02 <b>NEW</b>		■	3

## Program Information

- Three 0.1-mL specimens, each containing 200 µg/mL of human DNA in media
- Two shipments per year

## Additional Information

These Surveys 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 Carbamezepine induced Stevens-Johnson syndrome (CSJ)
- o Allopurinol Stevens-Johnson syndrome (ASJ)
- o Hypersensitivity to abacavir (HA)
- o Dapsone hypersensitivity (DH)

**DADR2**

- o Celiac disease (CD)
- o Narcolepsy (N)
- o Pemphigus vulgaris (PV)
- o Psoriasis (P)
- o Antiglomerular basement membrane disease (ABM)
- o Birdshot retinochoroidopathy (BR)
- o Idiopathic myopathy (IM)

---

## Atlas of Transplant Pathology

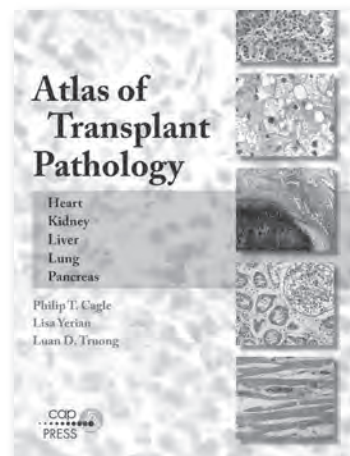
This atlas serves as a handy resource for practical interpretation of solid organ transplant biopsies and other specimens by general pathologists as well as subspecialists.

Includes over 600+ photomicrographs and tables.

### Available in print and ebook formats.

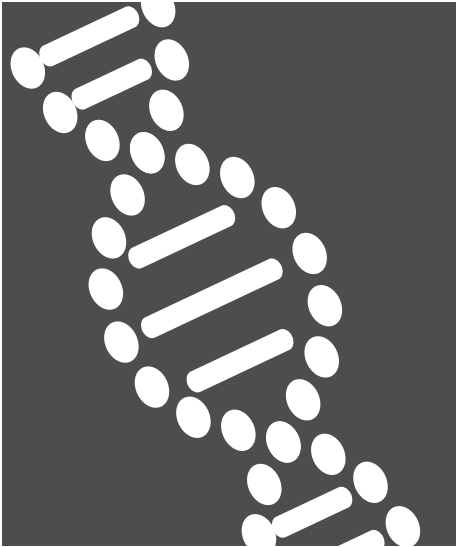
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**Item number:** PUB124  
254 pages; 2015

# 19 Genetics and Molecular Pathology



## We support quality assurance in NGS.

- Molecular tumor profiling using cell free DNA (CFDNA)
- Noninvasive prenatal screening of aneuploidies (NIPT)
- IGHV somatic hypermutation (IGHV)
- Customized in silico programs: NGS Undiagnosed Disorders-Exome (NGSE) and NGS Bioinformatics Somatic Variant Validated Material (NGSBV)
- Transcriptome analysis using RNASeq (RNA)
- Educational program for germline variant interpretation (VIP/VIP1)

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**NEW**

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<i>BCR/ABL1 p210</i>	

## Discontinued Programs

Cytogenetics (CYM)

# 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/Shipment
	CY	CYBK	
Chromosome abnormality	■	■	6
Karyotype nomenclature	■	■	6
Educational challenge, ungraded	■	■	1 per year

### Additional Information

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



## CAP/ACMG Fluorescence In Situ Hybridization CYF, CYI

Disease/Procedure	Program Code		Challenges/Shipment	
	CYF	CYI	A	B
Constitutional and Hematologic Disorders				
FISH for constitutional disorder - slides	■		1	1
FISH for constitutional disorder - paper/photograph challenge	■		2	2
FISH for hematologic disorder - slides	■		1	1
FISH for hematologic disorder - paper/photograph challenge	■		2	2
Urothelial Carcinoma				
FISH for urothelial carcinoma		■	2	2

### Additional Information

- CYF 2018-A:
  - Constitutional disorder - Williams syndrome critical region (two slides)
  - Constitutional disorder - (two paper/photograph challenges)
  - Hematologic disorder - *BCR/ABL1* (two slides)
  - Hematologic disorder - (two paper/photograph challenges)
- CYF 2018-B:
  - Constitutional disorder - *SRY* (two slides)
  - Constitutional disorder - (two paper/photograph challenges)
  - Hematologic disorder - CLL panel (four slides)
  - Hematologic disorder - (two paper/photograph challenges)
- CYI is prepared from cell suspension samples. For FISH in paraffin-embedded tissues, see page 237.

### Program Information

- CYF - Four slides and four paper/photograph challenges
- CYI - Two 250- $\mu$ L cell samples suspended in ethanol from two different specimens; participants use FISH to detect chromosome abnormalities
- Two shipments per year



## CAP/ACMG Fluorescence In Situ Hybridization for Paraffin-Embedded Tissue CYH, CYJ, CYK, CYL

Analyte/Procedure	Program Code				Challenges/ Shipment	
	CYH	CYJ	CYK	CYL	A	B
Breast Cancer						
<i>HER2</i> gene amplification	■				10	10
Brain/Glioma Tissue						
<i>1p/19q</i>		■			1	1
Solid Tumor						
<i>FOXO1</i> gene rearrangement			■		1	
<i>DDIT3</i> gene rearrangement			■			1
Lymphoma Tissue						
<i>CCND1</i> (CyclinD1) gene rearrangement				■	1	
<i>BCL2</i> gene rearrangement				■		1

### 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



### CAP/ACMG Constitutional Microarray CYCGH

Procedure	Program Code	Challenges/Shipment
	CYCGH	
Cytogenomic microarray analysis for constitutional abnormality	■	2
Educational paper/photograph challenge for constitutional abnormality	■	1

#### Additional Information

Participants will identify and characterize gains or losses and the cytogenetic location of abnormalities detected.

This Survey is not appropriate for low resolution arrays that are designed to detect only aneuploidy.

#### Program Information

- Two 3.0- $\mu$ g DNA specimens; one paper/photograph challenge
- Two shipments per year



### CAP/ACMG Oncology Microarray CYCMA

Procedure	Program Code	Challenges/Shipment
	CYCMA	
Cytogenomic microarray analysis for oncologic abnormality	■	1
Educational paper/photograph challenge for oncologic abnormality	■	1

#### Additional Information

Participants will identify and characterize gains or losses and the cytogenetic location of abnormalities detected.

#### Program Information

- One 3.0- $\mu$ g DNA specimen; one paper/photograph challenge
- Two shipments per year





# 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/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



CAP/ACMG Alpha-1 Antitrypsin Genotyping AAT			
Analyte/Procedure	Program Code		Challenges/Shipment
	AAT		
Alpha-1 antitrypsin ( <i>SERPINA1</i> ) genotyping	■		3

This Survey will test for the M, S, and Z alleles.

## Program Information

- Three 10.0-µg extracted DNA specimens
- Two shipments per year



CAP/ACMG Apolipoprotein E Genotyping APOE			
Analyte/Procedure	Program Code		Challenges/Shipment
	APOE		
Apolipoprotein E ( <i>APOE</i> ) genotyping	■		3

This Survey 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



### CAP/ACMG BRCA1/2 Sequencing BRCA

Analyte/Procedure	Program Code	Challenges/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-µg extracted DNA specimens
- Two shipments per year



### CAP/ACMG Hemoglobinopathies Genotyping HGM

Analyte/Procedure	Program Code	Challenges/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



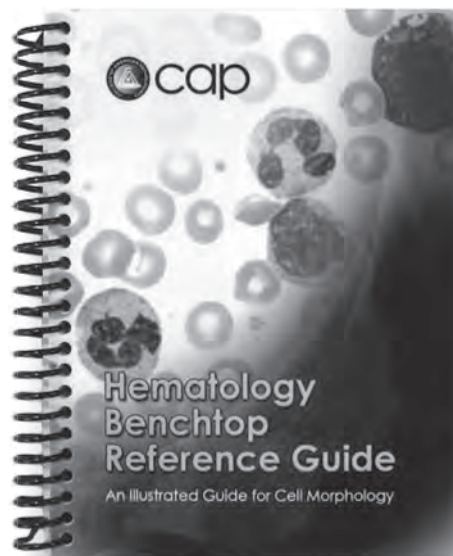
## Hematology Benchtop Reference Guide (HBRG)

- More than 50 different cell identifications, including common and rare cells
- Detailed descriptions for each cell morphology
- Six tabbed sections for easy reference
  - Erythrocytes
  - Erythrocyte Inclusions
  - Granulocytic (Myeloid) and Monocytic Cells
  - Lymphocytic Cells
  - Platelets and Megakaryocytic Cells
  - Microorganisms and Artifacts
- A durable and water-resistant format to withstand years of benchtop use—5” x 6½”

**Choose code HBRG on your Surveys order form.**

Or, view sample pages and order online:

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- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



## CAP/ACMG Molecular Genetics MGL1, MGL2, MGL3, MGL4, MGL5

Disease/Gene	Program Code					Challenges/ Shipment
	MGL1	MGL2	MGL3	MGL4	MGL5	
Bloom syndrome				■		3
<i>BRCA1/2</i>			■			3
Canavan				■		3
Connexin 26			■			3
Cystic fibrosis		■			■	3/2(MGL5)
DMD/Becker		■				3
Factor V Leiden	■					3
Familial dysautonomia				■		3
Fanconi anemia complementation group C				■		3
Fragile X	■					3
Friedreich ataxia		■				3
Gaucher				■		3
Glycogen storage disease type IA				■		3
Hemochromatosis	■					3
Hemoglobin S/C		■				3
Huntington		■				3
Methylene tetrahydrofolate reductase (MTHFR) c.665C>T (677C>T) and c.1286A>C (1298A>C)	■					3
Mucopolipidosis IV				■		3
Multiple endocrine neoplasia type 2 (MEN2)			■			3
Myotonic dystrophy		■				3
Niemann-Pick type A/B				■		3
Plasminogen activator inhibitor (PAI)-1	■					3
Prader-Willi/Angelman syndrome	■					3
Prothrombin	■					3
RhD		■				3
Spinal muscular atrophy		■				3
Spinocerebellar ataxia		■				3
Tay-Sachs				■		3

### Additional Information

- The *BRCA1/2* program (module MGL3) is designed for laboratories testing for the three Ashkenazi Jewish founder mutations.
- 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.

### Program Information

- MGL1, MGL2, MGL3, MGL4 - Three 50.0- $\mu$ g extracted DNA specimens
- MGL5 - Two 50.0- $\mu$ g extracted DNA specimens
- Two shipments per year



### CAP/ACMG Inherited Metabolic Diseases IMD1, IMD2, IMD3

Analyte/Procedure	Program Code			Challenges/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



### CAP/ACMG Molecular Genetics Sequencing SEC, SEC1

Procedure	Program Code		Challenges/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.
- Results for both programs (SEC, SEC1) must be submitted online through e-LAB Solutions Suite.

#### Program Information

- SEC - One CD-ROM containing 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
- SEC1 - Three 10.0-μg extracted DNA specimens; forward and reverse lyophilized primers are provided
- Two shipments per year



## Pharmacogenetics PGX, PGX1, PGX2, PGX3

Analyte/Procedure	Program Code				Challenges/ Shipment
	PGX	PGX1	PGX2	PGX3	
<i>CYP2C19</i>	■				3
<i>CYP2C9</i>	■				3
<i>CYP2D6</i>	■				3
<i>CYP3A4</i>	■				3
<i>CYP3A5</i>	■				3
<i>SLCO1B1</i> (rs4149056)	■				3
<i>VKORC1</i>	■				3
<i>IL28B</i> (rs12979860)		■			3
<i>HLA-B*15:02</i>			■		3
<i>HLA-B*57:01</i>			■		3
<i>DPYD</i>				■	3
<i>TPMT</i>				■	3
<i>UGT1A1</i>				■	3

### Additional Information

- *UGT1A1* (PGX3 Survey) 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.
- Survey PGX2 is designed for laboratories that provide *HLA-B\*57:01* testing to identify risk of hypersensitivity to abacavir and *HLA-B\*15:02* testing to identify risk of hypersensitivity to carbamazepine. The intended response is qualitative (presence/absence of the allele). This Survey is not appropriate for laboratories that perform molecular HLA typing. For HLA typing proficiency testing, please consult the HLA Molecular Typing (DML) Survey.

## CAP/ACMG Rett Syndrome (*MECP2*) RETT

Analyte/Procedure	Program Code		Challenges/ Shipment
	RETT		
<i>MECP2</i> genotyping	■		3
<i>MECP2</i> duplication/deletion analysis	■		3

### Program Information

- Three 25.0-µg extracted DNA specimens
- Includes allele detection (genotyping) and/or interpretive challenges
- Two shipments per year

### Program Information

- Three 10.0-µg extracted DNA specimens
- Two shipments per year



### CAP/ACMG Thrombophilia Mutations TPM

Analyte/Procedure	Program Code	Challenges/Shipment
	TPM	
Factor II	■	3
Factor V	■	3

**Additional Information**

This Survey 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-µL synthetic whole blood specimens
- Two shipments per year



### Red Blood Cell Antigen Genotyping RAG

Procedure	Program Code	Challenges/Shipment
	RAG	
Red blood cell antigen genotype with predictive phenotype	■	3

**Program Information**

- Three 2.0-mL whole blood specimens
- Two shipments per year

**NEW**

### Variant Interpretation Only VIP/VIP1

Analyte/Procedure	Program Code	Challenges/Shipment
	VIP/VIP1	
Variant interpretation online case review	■	3

**Additional Information**

VIP educates 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
- Five questions per case

**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 Survey VIP
- Earn a maximum of 3 CME credits (*AMA PRA Category 1 Credits™*) per pathologist/MD/PhD and a maximum of 3 CE credits per technologist/genetic counselor for completion of an entire year
- One online activity per year; your CAP shipping contact will be notified via email when the activity is available



Noninvasive Prenatal Testing NIPT <span style="float: right; border: 1px solid black; border-radius: 50%; padding: 2px 5px; font-weight: bold;">NEW</span>		
Analyte	Program Code	Challenges/Shipment
	NIPT	
Cell-free DNA screening for fetal aneuploidy	■	3

**Program Information**

- Three maternal plasma samples
- Two shipments per year

## 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 labs 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 labs 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.

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## Next-Generation Sequencing

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

### Next-Generation Sequencing NGS

Procedure	Program Code	Challenges/Shipment
	<b>NGS</b>	
Next-generation sequencing	■	1

#### Additional Information

Laboratories will have the ability to test up to 200 preselected chromosomal positions within various genes; for a full list of genes in this program, please go to [cap.org](http://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- $\mu$ g extracted DNA specimen
- 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/Shipment
	<b>NGSST</b>	
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 the following 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*.

#### Program Information

- Three 1.0- $\mu$ g DNA (50 ng/ $\mu$ L) specimens
- Two shipments per year

### Next-Generation Sequencing—Hematologic Malignancies NGSHM

Procedure	Program Code	Challenges/Shipment
	<b>NGSHM</b>	
Next-generation sequencing	■	3

#### 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 the following 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*.

#### Program Information

- Three 1.0- $\mu$ g DNA (50 ng/ $\mu$ L) specimens
- Two shipments per year



## Next-Generation Sequencing Bioinformatics NGSB1, NGSB2

Procedure	Program Code		Challenges/Shipment
	NGSB1	NGSB2	
Illumina TruSeq Amplicon Cancer Panel	■		1
Ion Torrent AmpliSeq Cancer Hotspot v2		■	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 the following 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*.

### Program Information

- Sequencing files containing somatic variants to be downloaded into your laboratory bioinformatics pipeline for analysis and reporting; file sizes range from 100MB to 1GB
- NGSB1 - FASTQ file format for the Illumina TruSeq Amplicon Cancer Panel
- NGSB2 - BAM and FASTQ file formats for the Ion Torrent AmpliSeq Cancer Hotspot v2 Panel
- This is an online only program, delivered two times a year; your CAP shipping contact will be notified [via email](#) when the activity is available

NEW

## Next-Generation Sequencing Undiagnosed Disorders—Exome NGSE

Analyte/Procedure	Program Code	Challenges/Shipment
	NGSE	
Exome analysis for germline undiagnosed disorders	■	1

### Additional Information/Minimum Requirements

- This in silico based Survey 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.
- Laboratories are expected to provide an exome sequencing data file that has been generated using one of the following sources: a specimen from the NGS Survey program (see page 246) or from one of the NIST Reference Material cell lines: RM 8398 (NA12878), RM 8391, RM 8392, or RM 8393.
- FASTQs or unaligned BAMs should 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:
  - o Internet Explorer (IE) 11
  - o Safari - The two latest, released versions on Mac OS X and iOS
  - o Firefox - The two latest, released versions
  - o Chrome - The two latest, released versions
  - o Windows - 7 (32-bit and 64-bit), 8 (64-bit), and 10 (32-bit and 64-bit)
- Due to the extremely large file sizes, a minimum allowable transfer speed of 20Mbps will be needed to ensure the successful transfer of sequencing files between laboratories and CAP; however, 40 Mbps and higher is strongly recommended. *Note:* Laboratories should check with their technology department for allowable transfer speeds to determine estimated transfer time and browser/operating system access.
- Laboratories must comply with the above requirements to participate in this program. Additional information regarding how and where to provide your laboratory's exome file will be sent closer to the ship date.

### Program Information

- One in silico mutagenized exome sequencing file to be downloaded and analyzed by your laboratory bioinformatics pipeline
- The 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

## Next-Generation Sequencing Bioinformatics Somatic Validated Materials NGSBV

NEW

Analyte/Procedure	Program Code	Challenges/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 are expected to provide a gene panel or exome sequencing data file that has been generated using one of the following sources: a specimen from the NGS Survey program (see page 246) or from one of the following NIST Reference Material cell lines: RM 8398 (NA12878), RM 8391, RM 8392, or RM 8393.
- FASTQs or unaligned BAMs should be submitted along with a BED file describing the regions targeted and interrogated by your laboratory.
- The mutagenized sequencing file will contain up to 50 somatic variants (depending on the size of the panel/exome provided) at allele fractions from 5% to 50% and will include both single nucleotide variants and insertions/deletions, the latter ranging from 1-15bp. All variants will be modeled based on actual somatic mutations from the COSMIC database.
- Laboratories can transfer and download files from most modern browsers/ operating systems:
  - o Internet Explorer (IE) 11
  - o Safari - The two latest, released versions on Mac OS X and iOS
  - o Firefox - The two latest, released versions
  - o Chrome - The two latest, released versions
  - o Windows - 7 (32-bit and 64-bit), 8 (64-bit), and 10 (32-bit and 64-bit)
- Due to the extremely large file sizes, a minimum allowable transfer speed of 20Mbps will be needed to ensure the successful transfer of sequencing files between laboratories and CAP; however, 40 Mbps and higher is strongly recommended. *Note:* Laboratories should check with their technology department for allowable transfer speeds to determine estimated transfer time and browser/ operating system access.
- Laboratories must comply with the above requirements to participate in this program. Additional information regarding how and where to provide your laboratory's sequencing file will be sent closer to the ship date.

### Program Information

- One challenge containing in silico mutagenized somatic variants to be downloaded into your bioinformatics pipeline
- Gene panel or exome files may be submitted
- Two online activities per year; your CAP shipping contact will be notified [via email](#) when the activity is available

## 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/Shipment
	<b>MSI</b>	
Microsatellite instability testing (DNA amplification)	■	3
<i>MLH1</i> promoter methylation analysis	■	1

Laboratories performing DNA mismatch repair assessment by immunohistochemistry methods should see Survey MMR on page 267.

#### Program Information

- Two 10.0-micron unstained paraffin section slides and one H&E slide; two photograph challenges
- For laboratories performing molecular testing using PCR
- Two shipments per year

### **NEW** IGHV Mutation Analysis IGHV

Analyte/Procedure	Program Code	Challenges/Shipment
	<b>IGHV</b>	
<i>IGHV</i>	■	3

#### Program Information

- Three 20- $\mu$ g DNA specimens (200 ng/ $\mu$ L)
- Two shipments per year

#### 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 V-gene allele, percent similarity and mutation status (SHM).

### In Situ Hybridization ISH, ISH2

Analyte/Procedure	Program Code		Challenges/Shipment
	ISH	ISH2	
Epstein-Barr virus (EBV)	■		4
Human papillomavirus (HPV)	■		4
Kappa/Lambda (IGK/IGL)	■		4
<i>HER2 (ERBB2)</i> gene amplification (brightfield)		■	10

Laboratories performing FISH for interphase chromosomal targets in paraffin sections refer to the Cytogenetics Surveys, page 237.

#### 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 MH05

Procedure	Program Code	Challenges/Shipment
	MH05	
DNA purification	■	1

### Additional Information

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/Shipment
	NEO	
Online assessment of percent neoplastic cellularity	■	10

### Program Information

- Ten Regions of Interests (ROIs) using whole slide images
- A method-based preanalytic Survey 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 Translocation SARC

Gene	Program Code	Challenges/Shipment
	SARC	
Sarcoma translocation* (RT-PCR)	■	3

\*See translocation listing below.

Laboratories performing FISH for sarcoma translocation refer to the Cytogenetics Surveys, page 238.

### Program Information

- Snap-frozen cell pellet from which approximately 5.0-µg of RNA can be extracted
- Two shipments per year

## Sarcoma Translocation 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 DNA CFDNA

NEW

Analyte/Procedure	Program Code	Challenges/Shipment
	CFDNA	
cfDNA	■	3

### Additional Information

- Mix of fragmented cell line gDNA and biosynthetic DNA.
- This is not intended for laboratories that perform circulating tumor cell (CTC) analysis.
- Potential targets included in this Survey are *BRAF* V600E, *EGFR* T790M, *IDH1* R132C, *KRAS* G12D, and *NRAS* Q61R, all within a range of 0.1 to 1.0%.

### Program Information

- Three 300-ng DNA (10 ng/μL) specimens
- Two shipments per year

## RNA Sequencing RNA

NEW

Analyte/Procedure	Program Code	Challenges/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 Survey (SARC) for reverse transcription (RT)-PCR based detection (see page 251).
- Potential fusion variants include: *CD74-ROS1*, *EML4-ALK*, *ETV6-NTRK3*, *FGFR3-TACC3*, *PAX8-PPARG*, *SLC45A3-BRAF*.

### Program Information

- Three 500-ng RNA (10 ng/μL) specimens
- Two shipments per year

## Solid Tumor—Other BRAF, EGFR, KRAS, KIT

Analyte	Program Code				Challenges/Shipment
	BRAF	EGFR	KRAS	KIT	
<i>BRAF</i>	■				3
<i>EGFR</i>		■			3
<i>KRAS</i>			■		3
<i>KIT</i>				■	3
<i>PDGFRA</i>				■	3

### Program Information

- BRAF, EGFR, KRAS - Paraffin-embedded sections or shavings
- KIT/PDGFR - Four 10.0-micron unstained paraffin section slides and one H&E slide, for each specimen
- For laboratories performing molecular testing using PCR
- Two shipments per year

### Multigene Tumor Panel MTP

Analyte	Program Code	Challenges/Shipment
	MTP	
<i>BRAF</i>	■	3
<i>EGFR</i>	■	3
<i>HER2 (ERBB2)</i>	■	3
<i>KIT</i>	■	3
<i>KRAS</i>	■	3
<i>NRAS</i>	■	3
<i>PDGFRA</i>	■	3
<i>PIK3CA</i>	■	3

#### Additional Information

This program meets CAP Accreditation requirements for *BRAF*, *EGFR*, and *KRAS* for laboratories that perform testing for the detection of somatic single nucleotide variants, insertions, and deletions in these genes. Laboratories performing this testing must enroll in either MTP or the respective single gene PT programs to meet CAP Accreditation requirements; this includes laboratories that perform NGS-based assays, non-NGS-based multiplexed assays or non-multiplexed assays (eg, Sanger sequencing).

#### Program Information

- Three 2.0- $\mu$ g gDNA (50 ng/ $\mu$ L) specimens for laboratories performing molecular testing on multiple targets
- Two shipments per year

### Glioma GLI

Analyte	Program Code	Challenges/Shipment
	GLI	
<i>MGMT</i>	■	2
<i>IDH1, IDH2</i>	■	3
10q ( <i>PTEN</i> ) deletion	■	1

#### Program Information

- Two 2.0- $\mu$ g gDNA (50 ng/ $\mu$ L) 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/ Shipment
	MHO, MHO1	MHO2, MHO3	MHO5	
Lymphoid malignancy genotyping				
<i>IGH</i>	■			3
<i>IGH/BCL2</i> major	■			3
<i>IGH/BCL2</i> minor	■			3
<i>IGH/CCND1</i>	■			3
<i>IGK</i>	■			3
<i>TRB</i>	■			3
<i>TRG</i>	■			3
Myeloid malignancy genotyping				
<i>BCR/ABL1 p190</i> <b>NEW</b>		■		1
<i>BCR/ABL1 p210</i> <b>NEW</b>		■		1
<i>CBFB/MYH11</i>		■		1
<i>FLT3 ITD</i>		■		1
<i>FLT3 TKD</i>		■		1
<i>JAK2 c.1849G&gt;T(p.V617F)</i>		■		1
<i>NPM1</i>		■		1
<i>PML/RARA</i>		■		1
<i>RUNX1/RUNX1T1</i>		■		1
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 or international shipments)

### Minimal Residual Disease MRD, MRD1, MRD2

Analyte	Program Code			Challenges/ Shipment
	MRD	MRD1	MRD2	
<i>BCR/ABL1 p190</i>		■		3
<i>BCR/ABL1 p210</i>	■			3
<i>PML/RARA</i>			■	3

#### Program Information

- Three RNA specimens in distilled 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



# 20 Anatomic Pathology



## Evaluate your laboratory's tissue and slide preparation techniques with CAP/NSH HistoQIP Surveys.

- Submit your own laboratory's slides and have the stain quality graded by an expert panel of pathologists, histotechnologists, and histotechnicians.
- Participate in three new programs evaluating:
  - Gynecologic biopsy specimen slide preparation
  - Mismatch repair protein IHC staining
  - IHC staining of non-small cell lung carcinoma

## Anatomic Pathology

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## New Programs

**NEW**

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## Surgical Pathology

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

### Performance Improvement Program in Surgical Pathology PIP/PIP1

Program	Program Code	Challenges/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
- Features PIP case selections that include:
  - A variety of neoplastic and nonneoplastic lesions
  - Inflammatory and infectious disease
  - Various sites, encompassing a variety of organ systems

#### Program Information

- PIP - Ten diagnostic challenges/H&E stained glass slides with clinical history; reporting with 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 Survey PIP
- Earn a maximum of 40 CME credits (*AMA PRA Category 1 Credits™*) per pathologist for completion of an entire year
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Four shipments per year

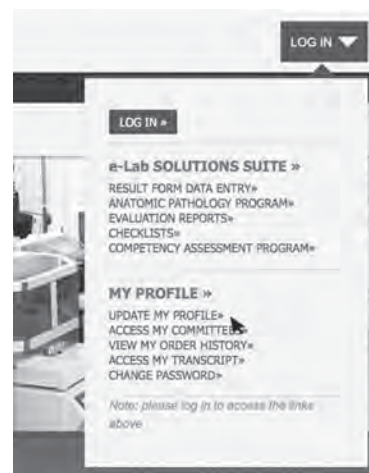


## Have you created or updated your CAP Profile?

Each laboratory staff member should have their own profile. Your profile is transferrable when you leave your current position. Use it to maintain information about yourself, including:

- Business affiliations
- Personal contact information
- Certifications
- Specialties and skills
- Contact preferences
- Addresses
- Inspector-related information

To create or update your profile, visit [cap.org](http://cap.org), log in, and click on **UPDATE MY PROFILE**.



## Online Performance Improvement Program in Surgical Pathology PIPW/PIPW1

Program	Program Code	Challenges/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 disease
  - 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; reporting with 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 Survey 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 ABP MOC Part IV Practice Performance Assessment requirements
- Powered by DigitalScope® technology
- Four online activities per year; your CAP shipping contact will be notified [via email](#) when the activity is available



## Test your diagnostic skills as a pathologist with CPIP

Online, hands-on and interactive, the Clinical Pathology Improvement Program (CPIP) enables pathologists to sharpen their diagnostic skills in real time by working through an actual case. Each month, you will receive a new scenario, including slide images and clinical background. As the case unfolds, more information is revealed, just as in the laboratory. Participants who successfully complete the posttest may apply their earned credits to their MOC SAM requirements. Enjoy a full year of CPIP and earn up to 15 CME/SAM credits.

**Choose code CPIP/CPIP1 on your Surveys order form.**

## Virtual Biopsy Program VBP/VBP1

Program	Program Code	Challenges/Shipment
	VBP/VBP1	
Online biopsy case review	■	5

### Additional Information

VBP educates pathologists to assess and improve their diagnostic skills in surgical pathology.

- Cases may include gross, radiographic, or endoscopic images.
- Cases are from selected organ systems and may include a variety of specimen types (eg, core biopsies, endoscopic biopsies, curettings, aspirate smears). Activities with their corresponding topics are:
  - 2018-A Liver Biopsy
  - 2018-B Soft Tissue Biopsy
  - 2018-C Prostate Biopsy
  - 2018-D Surgical Pathology Biopsy (various sites)
- See system requirements on page 13.

### Program Information

- VBP - Five diagnostic challenges/whole slide images with clinical history; reporting with CME/SAM credit is available for one pathologist; for each additional pathologist, order VBP1
- VBP1 - Reporting option with CME/SAM credit for each additional pathologist (within the same institution); must order in conjunction with Survey VBP
- Earn a maximum of 25 CME/SAM credits (AMA PRA Category 1 Credits™) per pathologist for completion of an entire year
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- 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/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/SAM credit is available for one pathologist; for each additional pathologist, order DPATH1
- DPATH1 - Reporting option with CME/SAM credit for each additional pathologist (within the same institution); must order in conjunction with Survey DPATH
- Earn a maximum of 15 CME/SAM credits (AMA PRA Category 1 Credits™) per pathologist for completion of an entire year
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Powered by DigitalScope technology
- Two online activities per year; your CAP shipping contact will be notified [via email](#) when the activity is available



## Experience a new level of pathology education with SAM courses from the CAP

- Outcome-based learning at the cutting edge of pathology science
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## Hematopathology Online Education HPATH/HPATH1

Program	Program Code	Challenges/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.

- All cases have been specially selected to highlight important changes in the 2016 revision of the WHO Classification.
- 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.
- Five SAM questions per case.
- See system requirements on page 13.

### Program Information

- HPATH - Five diagnostic challenges/online whole slide images with clinical history; reporting with CME/SAM credit is available for one pathologist/hematologist. For additional pathologist/hematologist, order HPATH1
- HPATH1 - Reporting option with CME/SAM credit for each additional pathologist and hematologist (within the same institution); must order in conjunction with Survey HPATH
- Earn a maximum of 12.5 CME/SAM 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 ABP MOC Part IV Practice Performance Assessment requirements
- Powered by DigitalScope technology
- Two online activities 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/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 2018 cases will be comprised of specimens from the central nervous system and soft tissue.
- See system requirements on page 13.

### Program Information

- TICP - Four online assessment challenges with clinical history; for each additional pathologist or cytotechnologist, order TICP1
- TICP1 - Reporting option with CME/SAM/CE credit for each additional pathologist/technologist (within the same institution); must order in conjunction with Survey TICP
- Earn a maximum of 10 CME/SAM 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 ABP MOC Part IV Practice Performance Assessment requirements
- 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



## Cancer Staging Improvement Program PCSP/PCSP1

Program	Program Code	Challenges/Shipment
	PCSP/PCSP1	
Online surgical pathology cancer case review	■	4

### Additional Information

PCSP educates pathologists in cancer case review and reporting. This program features four challenging online cases to stage and classify a cancer as defined by the *American Joint Committee on Cancer (AJCC) Cancer Staging Manual*, 8th edition, and synoptically report out using the CAP Cancer Protocols.

- Cases review challenges in interpretation, staging, and cancer reporting.
- See system requirements on page 13.

### Program Information

- PCSP - One mailing containing four diagnostic challenges/whole slide H&E images with clinical history; reporting with CME/SAM credit is available for one pathologist; for each additional pathologist, order PCSP1
- PCSP1 - Reporting option with CME/SAM credit for each additional pathologist (within the same institution); must order in conjunction with Survey PCSP
- Earn a maximum of 5 CME/SAM credits (AMA PRA Category 1 Credits™) per pathologist for completion of an entire year
- Powered by DigitalScope technology
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- One online activity 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/Shipment	
		A	B
	HQIP		
H&E – Fallopian tube resection	■	1	
H&E – Small intestine resection	■	1	
IHC – SMA (small intestine resection)	■	1	
IHC – Pancytokeratin (fallopian tube)	■	1	
Special Stain – Congo red (tissue with amyloid)	■	1	
H&E – Gallbladder resection	■		1
H&E – Melanoma from skin resection	■		1
IHC – Ki67 (tonsil resection)	■		1
IHC – S100 (melanoma from skin resection)	■		1
Special Stain – Mucicarmine (gallbladder resection)	■		1

**Additional Information**

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, an education critique, 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 and coverslipped glass slides (one from each category) per mailing
- Includes photographs and online learning assessment questions
- Two shipments per year

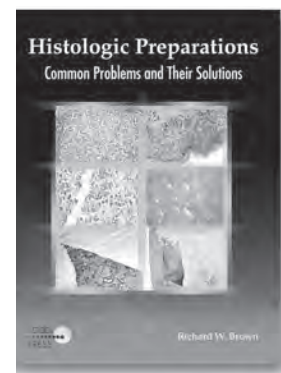


## Learn the secret to good slide technique

*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; and mycobacteria, *Helicobacter pylori*, spirochetes, and fungi.

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**Item number:** PUB123  
Softcover; 168 pages;  
300+ photomicrographs,  
figures, and tables; 2009

## CAP/NSH HistoQIP—IHC HQIHC

Stain/Tissue	Program Code	Challenges/Shipment	
		HQIHC	A
IHC – CK20 (bladder biopsy)	■	1	
IHC – Progesterone receptor (cervical biopsy)	■	1	
IHC – CD34 (skin, punch biopsy)	■	1	
IHC – CD138 (stomach biopsy)	■	1	
IHC – CD3 (colon biopsy)	■		1
IHC – EMA (endometrium)	■		1
IHC – S100 (skin, excisional biopsy)	■		1
IHC – p504s (prostate biopsy with carcinoma)	■		1

## Additional Information

HistoQIP – IHC improves the preparation of immunohistochemistry slides in all anatomic laboratories involved in the handling of gastrointestinal, dermatologic, and urological tract 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

- Participants may submit up to four IHC stained and coverslipped glass slides (one from each category) per mailing
- Two shipments per year



## CAP/NSH HistoQIP Mismatch Repair IHC HQMMR

NEW

Stain/Tissue	Program Code	Challenges/Shipment	
		HQMMR	A
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

## Additional Information

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



**NEW**

## CAP/NSH HistoQIP Non-small Cell Lung Carcinoma IHC HQNSC

Stain/Tissue	Program Code	Challenges/Shipment	
		A	B
	HQNSC		
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 – CK5/6 (lung squamous cell carcinoma)	■		1
H&E – PD-L1 (positive lung squamous cell carcinoma)	■		1
IHC – PD-L1 (positive lung squamous cell carcinoma)	■		1

### Additional Information

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 four IHC and one H&E stained coverslipped glass slides (one from each category) per mailing
- Two shipments per year



## CAP/NSH HistoQIP Biopsy Series HQIPBX

Stain/Tissue	Program Code	Challenges/Shipment	
		A	B
	HQIPBX		
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

### Additional Information

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

- Participant laboratories may submit up to four H&E stained and coverslipped glass slides (one from each category) per mailing
- Two shipments per year



## CAP/NSH HistoQIP Specialty Series HQBX1, HQBX2, HQBX3, HQBX4

Stain/Tissue	Program Code				Challenges/ Shipment	
	HQBX1	HQBX2	HQBX3	HQBX4 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">NEW</span>	A	B
<b>Gastrointestinal Biopsy Module</b>						
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
<b>Dermatologic Biopsy Module</b>						
H&E – Alopecia		■			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
<b>Urogenital Tract Biopsy Module</b>						
H&E – Bladder biopsy (nonneoplastic)			■		1	1
H&E – Bladder biopsy (with carcinoma)			■		1	1
H&E – Prostate needle biopsy (nonneoplastic)			■		1	1
H&E – Prostate needle biopsy (with carcinoma)			■		1	1
<b>Gynecological Biopsy</b>						
H&E – Cervical biopsy				■	1	1
H&E – Endometrial biopsy				■	1	1
H&E – Cone/Leep biopsy				■	1	1
H&E – Vagina biopsy				■	1	1

### Additional Information

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, gynecologic, and urogenital tract 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



## General Immunohistochemistry

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

### BRAF V600E BRAFV

Procedure	Program Code	Challenges/Shipment
	<b>BRAFV</b>	
BRAF V600E	■	10

#### Program Information

- One 10-core tissue microarray slide
- One shipment per year

### Immunohistochemistry MK

Procedure	Program Code	Challenges/Shipment
	<b>MK</b>	
Immunohistochemistry	■	16

The MK program allows laboratories to compare their assay methodology and results with all participating laboratories.

#### Program Information

- Seven glass slides with unstained tissue sections from four separate cases; additional slides provided for an H&E stain and negative control
- Two shipments per year

### DNA Mismatch Repair MMR

Procedure	Program Code	Challenges/Shipment
	<b>MMR</b>	
DNA mismatch repair by immunohistochemistry	■	1

If your laboratory performs DNA mismatch repair by molecular methods, see the MSI program on page 250.

#### Program Information

- Four 4.0-micron unstained paraffin section slides and one H&E slide for the immunohistochemical analysis of DNA mismatch repair proteins MLH1, MSH2, MSH6, and PMS2
- Two shipments per year

### PD-L1 PDL1

Procedure	Program Code	Challenges/Shipment
	<b>PDL1</b>	
PD-L1	■	10

#### Program Information

- One 10-core tissue microarray slide
- One shipment per year

### CD117, CD20 Immunohistochemistry Tissue Microarray PM1, PM3

Analyte	Program Code		Challenges/Shipment
	PM1	PM3	
CD117	■		10
CD20		■	10

For ER/PgR testing, see the PM2 program on page 269.

#### Program Information

- One 10-core tissue microarray slide per predictive marker
- One shipment per year

### Immunohistochemistry Tissue Microarray Series PM5

Analyte	Program Code		Challenges/Shipment
	PM5		
Glypican-3	■		10
Myc	■		10

#### Program Information

- Two 10-core tissue microarray slides, one for Glypican-3 and one for Myc
- One shipment per year

#### Additional Information

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.

### Anaplastic Lymphoma Kinase IHC PM6

Procedure	Program Code		Challenges/Shipment
	PM6		
Anaplastic lymphoma kinase IHC (ALK)	■		10

#### Program Information

- One 10-core tissue microarray slide
- One shipment per year

## Let the CAP connect you to the IHC samples you need

### CAP Immunohistochemistry (IHC) Validation Program

- The CAP will facilitate the exchange of tissue samples once a sufficient number of laboratories performing the same marker are identified.
- Samples will be exchanged twice a year based on availability.
- Each laboratory will receive its own individual results along with an anonymized summary report for all participants.

Sign up for this complimentary service to access those hard-to-obtain specimens.

To get started, visit [cap.org](http://cap.org) and search *Sample Exchange Registry* to learn more and download a Contact Information Form.

## Predictive Markers

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

HER2 Immunohistochemistry <b>HER2</b>		
Analyte	Program Code	Challenges/Shipment
	<b>HER2</b>	
HER2	■	20

### Program Information

- Two 10-core tissue microarray slides
- Two shipments per year

### Additional Information

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 <b>GHER2</b>		
Analyte	Program Code	Challenges/Shipment
	<b>GHER2</b>	
HER2	■	10

### Program Information

- One 10-core tissue microarray slide
- Two shipments per year

### Additional Information

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 <b>PM2</b>		
Analyte	Program Code	Challenges/Shipment
	<b>PM2</b>	
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

### Additional Information

The PM2 program fulfills the proficiency testing 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.

## 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/Shipment
	<b>AUP/AUP1</b>	
Autopsy online case analysis	<b>■</b>	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/SAM credit is available for one pathologist; for each additional pathologist, order AUP1
- Includes the option to download program content
- AUP1 - Reporting option with CME/SAM credit for each additional pathologist (within the same institution); must order in conjunction with Survey AUP
- Earn a maximum of 12.5 CME/SAM credits (AMA PRA Category 1 Credits™) per pathologist
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Two online activities per year

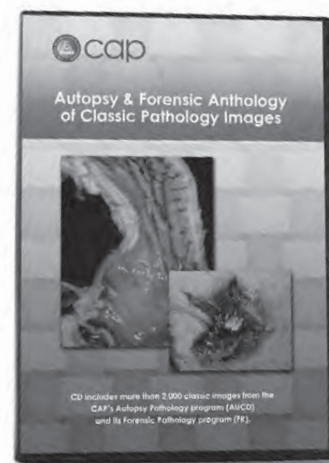


## Autopsy & Forensic Anthology of Classic Pathology Images (AFA)

This CD-ROM offering contains more than 2,000 classic images from the CAP's 1992–2010 Autopsy Pathology (AUCD) and the 1990–2010 Forensic Pathology (FR) programs.

- View images in three different modes:
  - List—Cases listed by program, year, patient age, and diagnosis
  - Browse—Images filtered by category and/or image type
  - Search—Access images via key words or word fragments
- Customize the anthology by adding your own images and categories
- Use only a standard Web browser—AFA runs on any operating system—with no software to install

**Choose code AFA on your Surveys order form.**





## Neuropathology Program NP/NP1

Program	Program Code	Challenges/Shipment
	NP/NP1	
Neuropathology online case review	■	8

### Additional Information

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 four of the eight cases.

### Program Information

- NP - Online activity providing eight cases and a mini-symposium; reporting with CME/SAM credit is available for one pathologist; for each additional pathologist, order NP1
- Includes option to download program content
- NP1 - Reporting option with CME/SAM credit for each additional pathologist (within the same institution); must order in conjunction with Survey NP
- Earn a maximum of 10 CME/SAM credits (AMA PRA Category 1 Credits™) per pathologist
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Powered by DigitalScope technology
- Two online activities per year



# 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	PARJPT	Proficiency Testing	Education
Conventional	■				■	10	10
SurePath		■		■	■		
ThinPrep			■	■	■		
Individual Participant Response Form	APAPCPT	APAPKPT	APAPMPT	APAPLPT	APARJPT		

### 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:

- Choose the following:
  - Slide Type program code (refer to table above)
  - 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
  - Add the PAP Education series number after the slide type program code (eg, PAPCPT1, PAPCPT2).
- 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).
- Select primary testing session option with two alternative date options using the Gynecologic Cytology Proficiency Testing Order Details Form.
- Order PPTENR only if you are a laboratory possessing a CLIA license to perform gynecologic cytology where all personnel are performing proficiency testing at another CLIA location.

### Additional Information

- Participants can receive laboratory reference interpretations and performance for the PAP Education slides within 20 minutes by fax.
- 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/APARJPT - Reporting option with CME/CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with Survey PAPCPT/PAPKPT/PAPMPT/PAPLPT/PARJPT
- 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 ABP MOC Part IV Practice Performance Assessment requirements
- 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 can receive laboratory reference interpretations and performance for the PAP Education slides within 20 minutes by fax.
- 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/CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with Survey 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 ABP MOC Part IV Practice Performance Assessment requirements
- Two shipments (five slides each)



## Human Papillomavirus (High Risk) for Cytopathology CHPVD, CHPVM, CHPVK, CHPVJ

Analyte/Procedure	Program Code				Challenges/Shipment
	CHPVD	CHPVM	CHPVK	CHPVJ	
HPV	■	■	■	■	5
High-risk HPV genotyping (optional)		■		■	5

### Additional Information

- Each laboratory should choose the Survey that best reflects the transport media received in its facility. For Survey CHPVJ, participants must provide results for all three media types. If your laboratory receives two types of media, order the Survey that is most appropriate for your specific laboratory (CHPVD, CHPVM, or CHPVK).
- For laboratories that perform HPV genotyping using ThinPrep PreservCyt Transport medium on site, Survey CHPVM and select samples of Survey 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

## Practice Management Resources

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*“With the CAP, we improved our billing system, reducing turnaround time to 48 hours or less after sign-out for resolving reoccurring unbilled claims. We also instituted a solution to prevent unpaid Medicare claims. The expertise shared was invaluable.”*

— 2015 Practice Management Participant



## Touch Imprint/Crush Preparation TICP/TICP1

Procedure	Program Code	Challenges/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 2018 cases will be comprised of specimens from the central nervous system and soft tissue.
- See system requirements on page 13.

### Program Information

- TICP - Four online assessment challenges with clinical history; for each additional pathologist or cytotechnologist, order TICP1
- TICP1 - Reporting option with CME/SAM/CE credit for each additional pathologist/technologist (within the same institution); must order in conjunction with Survey TICP
- Earn a maximum of 10 CME/SAM 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 ABP MOC Part IV Practice Performance Assessment requirements
- 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/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 can access laboratory reference interpretations and performance for the glass slides within 20 minutes by fax, providing rapid educational feedback, peer comparison, and additional review time.
- 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/CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with Survey NGC
- Earn a maximum of 25 CME credits (*AMA PRA Category 1 Credits™*) per pathologist and a maximum of 25 CE credits per cytotechnologist for completing the glass slides and online cases
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- 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/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 mediastinum and salivary topics.
- See system requirements on page 13.

### Program Information

- FNA - Five online diagnostic challenges; for each additional pathologist or cytotechnologist, order FNA1
- FNA1 - Reporting option with CME/CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with Survey 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 ABP MOC Part IV Practice Performance Assessment requirements
- 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/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 can access laboratory reference interpretations and performance for the glass slides within 20 minutes by fax, providing rapid educational feedback, peer comparison, and additional review time.

### 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
- FNAG1 - Reporting option with CME/CE credit for each additional pathologist/cytotechnologist (within the same institution); must order in conjunction with Survey FNAG
- Earn a maximum of 10 CME credits (*AMA PRA Category 1 Credits™*) per pathologist/resident and a maximum of 10 CE credits per cytotechnologist
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Two shipments per year





# 21 Forensic Sciences



## We live our mission of quality.

- 7,964 CAP-accredited laboratories
- 2,471 CAP inspections
- 23,196 laboratory sites using CAP proficiency testing

## Discontinued Programs

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Forensic Mitochondrial DNA Analysis (FIDM)

# Forensic Sciences

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

Forensic Identity, Nuclear DNA Analysis FID		
Procedure	Program Code	Challenges/Shipment
	<b>FID</b>	
Forensic nuclear DNA analysis	<b>■</b>	3

The American Society of Crime Laboratory Directors/Laboratory Accreditation Board Proficiency Review Committee (ASCLD/LAB PRC) has approved Survey FID.

### Program Information

- Simulated forensic case work includes reference standards for all suspects and victims along with evidentiary material such as vaginal swabs, semen stains, and crime scene blood stains
- Two shipments per year

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## Forensic Pathology FR/FR1

Procedure	Program Code	Challenges/Shipment
	FR/FR1	
Forensic pathology cases	■	6

### 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 six 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/investigator, order FR1
- FR1 - Additional pathologist or investigator (within the same institution) reporting option with CME or CE credit; must order in conjunction with Survey FR
- Includes option to download program content
- Pathologists can earn a maximum of 12 CME credits (*AMA PRA Category 1 Credits™*) for completion of an entire year
- This activity meets the ABP MOC Part IV Practice Performance Assessment requirements
- Members of the American Board of Medicolegal Death Investigators, analysts, and technologists can earn a maximum of 12 CE credits for completion of an entire year
- Two online activities per year



### Vitreous Fluid, Postmortem VF

Analyte	Program Code	Challenges/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

## Find a practical guide to toxicology laboratory operations with this resource

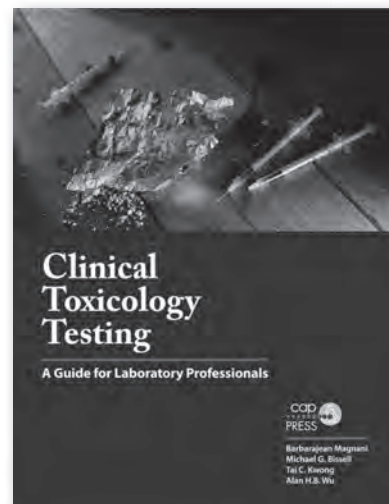
### *Clinical Toxicology Testing* *A Guide for Laboratory Professionals*

Complex issues face the laboratory director or pathologist who offers toxicology services. This thorough reference book will guide both experienced physicians and those in training through the pharmacological principles, testing menus, and methodologies for toxicology testing.

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- printed books at [estore.cap.org](http://estore.cap.org)
- ebooks at [ebooks.cap.org](http://ebooks.cap.org)



**Item number: PUB220**  
Softcover; 304 pages; 2012

## Forensic Toxicology, Criminalistics FTC

Analyte	Program Code	Challenges/Shipment
	FTC	
See drug listing below	■	4

The American Society of Crime Laboratory Directors/Laboratory Accreditation Board Proficiency Review Committee (ASCLD/LAB PRC) has approved Survey FTC.

### Program Information

- Three 20.0-mL whole blood specimens and one 20.0-mL synthetic urine specimen
- For crime and hospital laboratories that have forensic toxicology divisions performing qualitative and quantitative analysis of drugs in whole blood specimens along with a urine qualitative challenge
- Two shipments per year

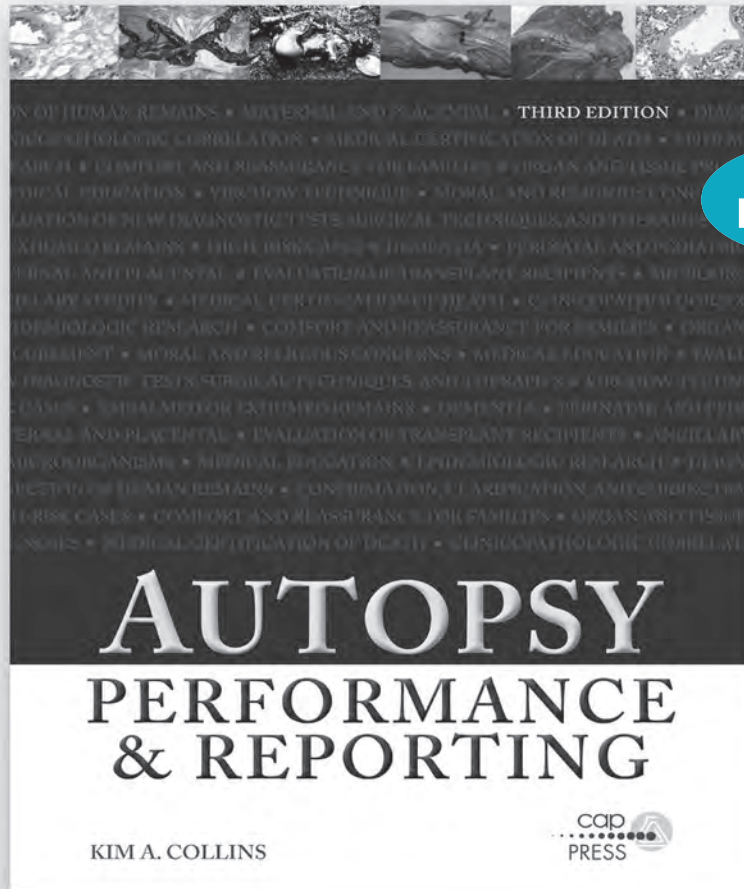
## FTC Program Drug Listing

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

6-acetylmorphine (6-AM)	Ecgonine ethyl ester	Norfluoxetine
7-aminoclonazepam	Ecgonine methyl ester	Norketamine
7-aminoflunitrazepam	Ephedrine	Norpropoxyphene
Acetaminophen	Fentanyl*	Norsertaline
Alpha-hydroxyalprazolam	Fluoxetine	Nortriptyline
Alprazolam	Flurazepam*	Oxazepam
Amitriptyline	Gamma-hydroxybutyrate (GHB)	Oxycodone
Amphetamine	Hydrocodone	Oxymorphone
Benzoyllecgonine	Hydromorphone	Paroxetine
Brompheniramine	Imipramine	Phencyclidine
Butalbital	Ketamine	Phenethylamine
Carisoprodol	Lorazepam	Phenobarbital
Chlorpheniramine	Lysergic acid diethylamide (LSD)	Phentermine
Clonazepam	Meperidine*	Phenytoin
Cocaethylene	Meprobamate	Propoxyphene
Cocaine	Methadone	Pseudoephedrine
Codeine	Methadone metabolite (EDDP)	Salicylate
Cyclobenzaprine*	Methamphetamine	Secobarbital
Delta-9-THC	Methylenedioxymphetamine (MDA)	Sertraline
Delta-9-THC-COOH	Methylenedioxymphetamine (MDMA)	Temazepam
Desipramine	Morphine*	Tramadol*
Desmethylocyclobenzaprine	N-desmethyltramadol	Trazodone
Dextromethorphan	Nordiazepam	Zolpidem
Diazepam	Nordoxepin	
Diphenhydramine	Norfentanyl	
Doxepin		*and/or metabolite(s)

Refer to Section 9, Toxicology, for a more comprehensive selection of toxicology offerings.

# Take a modern approach to autopsy pathology



**NEW  
EDITION**

Item number: PUB126

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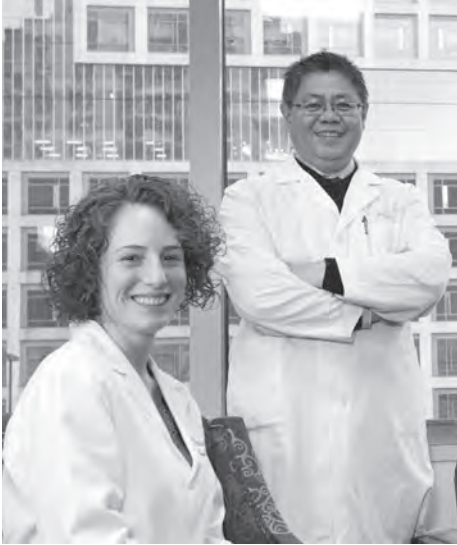
With more than 1,000 high-quality color images, the new edition of *Autopsy Performance & Reporting* is completely updated to include:

- 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

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# 22 Analyte/Procedure Index



## Our programs are supported by 500 experts in laboratory medicine.

These experts spend countless hours monitoring testing trends to:

- Determine specimen specifications to challenge participants.
- Keep our offerings contemporary with new analytes and programs.
- Provide peer-reviewed CME, SAM, and CE education.

## 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. Refer to the program description in this catalog to determine compatibility with your specific methodologies.

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
1,5-anhydroglucitol		AG	1,5-Anhydroglucitol	71	25-OH vitamin D	X	ABVD	Accuracy-Based Vitamin D	85
1,25 dihydroxy vitamin D		BMV1	Bone Markers and Vitamins	86			LN40	Vitamin D Cal Ver/Lin	127
3-methoxytyramines		N/NX	Urine Chemistry, Special	69		X	VITD	25-OH Vitamin D	84
4-hydroxytriazolam		DFC	Drug-Facilitated Crime	107	50:50 mixing study, APTT		CGE/CGEX	Coagulation, Extended	159
5-hydroxyindoleacetic acid, qualitative		N/NX	Urine Chemistry, Special	69			CGS1	Coag Special, Series 1	160–161
5-hydroxyindoleacetic acid, quantitative	X	N/NX	Urine Chemistry, Special	69	50:50 mixing study, PT		CGE/CGEX	Coagulation, Extended	159
6-acetylmorphine (6-AM)		DMPM	Drug Monitoring for Pain Management	106			CGS1	Coag Special, Series 1	160–161
		FTC	Forensic Toxicology, Criminalistics	104	<b>ABO grouping</b>	X	<b>J, J1</b>	Transfusion Medicine	214
		OFD	Oral Fluid for Drugs of Abuse	100		X	<b>JAT</b>	Transfusion Medicine, Automated	215
		T	Toxicology	96			JATE1	Transfusion Medicine, Automated, Educational	215
		UDC	Forensic Urine Drug Testing, Confirmatory	99			TMCA	Transfusion Medicine, Competency Assessment	219
		UT	Urine Toxicology	96	ABO subgroup typing		ABOSG	ABO Subgroup Typing	216
7-aminoclonazepam		DFC	Drug-Facilitated Crime	107	Acetaminophen	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		DMPM	Drug Monitoring for Pain Management	106			CZQ	Quality Cross Check, Chemistry and TDM	43
		FTC	Forensic Toxicology, Criminalistics	104			FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96			LN3	TDM Cal Ver/Lin	119
		UT	Urine Toxicology	96		X	SDS	Serum Drug Screen	101
7-aminoflunitrazepam		DFC	Drug-Facilitated Crime	107			T	Toxicology	96
		FTC	Forensic Toxicology, Criminalistics	104			UDS, UDS6	Urine Drug Screen	98
		T	Toxicology	96			UT	Urine Toxicology	96
		UT	Urine Toxicology	96	Acetone	X	AL1	Whole Blood Alcohol/Ethylene Glycol/Volatiles	101
10q ( <i>PTEN</i> ) deletion		GLI	Glioma	253		X	AL2	Serum Alcohol/Ethylene Glycol/Volatiles	101
11-dehydrothromboxane B2		TBX	11-Dehydrothromboxane B2	166			SDS	Serum Drug Screen	101
11-deoxycortisol		Y/YY	Ligand Assay, Special	84			VF	Vitreous Fluid, Post-mortem	101
17-hydroxycorticosteroids		N/NX	Urine Chemistry, Special	69	<b>Acid-fast smear</b>	X	<b>E</b>	Mycobacteriology	183
17-hydroxyprogesterone	X	Y/YY	Ligand Assay, Special	84					
17-ketosteroids		N/NX	Urine Chemistry, Special	69					



Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Acid-fast smear (cont.)</b>	X	<b>E1</b>	Mycobacteriology, Ltd	183
Acid phosphatase	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Activated clotting time	X	CT, CT1, CT2, CT3, CT5	ACT	162
		CTQ, CT1Q, CT2Q, CT3Q, CT5Q	Quality Cross Check, ACT	50
		POC14, POC15, POC16	Competency Activated Clotting Time	54
<b>Activated partial thromboplastin time</b>	X	<b>CGB</b>	Basic Coagulation	158
		CGE/CGEX	Coagulation, Extended	159
	X	<b>CGL</b>	Coagulation, Limited	158
		CGLQ	Quality Cross Check, Coagulation, Limited	49
		CGS1	Coag Special, Series 1	160–161
		CGS3	Coag Special, Series 3	160–161
		CGS4	Coag Special, Series 4	160–161
		DBGN	Anticoagulant Monitoring, Dabigatran	161
		FNPX	Anticoagulant Monitoring, Fondaparinux	161
		RVBN	Anticoagulant Monitoring, Rivaroxaban	161
Activated protein C resistance		CGE/CGEX	Coagulation, Extended	159
		CGS2	Coag Special, Series 2	160–161
Acylcarnitine		BGL	Biochemical Genetics	239
ADAMTS-13		CGS7	ADAMTS-13	160–161
<b>Adenovirus</b>		GIP	Gastrointestinal Panel	199
		ID2	Nucleic Acid Amp, Respiratory	197
	X	<b>IDR</b>	Infectious Disease Respiratory Panel	198
		VLS2	Viral Load	193
	X	<b>VR1</b>	Virology Culture	191
	X	<b>VR2</b>	Viral Antigen by DFA	191
	X	<b>VR4</b>	Viral Antigen by EIA and Latex	192
Adenovirus 40/41		SP, SPN	Stool Pathogen	180
Adjustable micropipette Cal V/L		I	Instrumentation	129

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Adrenocorticotrophic hormone (ACTH)	X	TM/TMX	Tumor Markers	89
<b>Alanine aminotransferase (ALT/SGPT)</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
<b>Albumin</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		SPE	Protein Electrophoresis	76
Albumin, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
Albumin, urine		ABU	Accuracy-Based Urine	111
		LN20	Urine Albumin	124
	X	U	Urine Chemistry, General	68
Albumin: creatinine ratio		ABU	Accuracy-Based Urine	111
		LN20	Urine Albumin Cal Ver/Lin	124
		U	Urine Chemistry, General	68
		UMC	Urine Albumin Creatinine	151
<b>Alcohol, serum</b>	X	<b>AL2</b>	Serum Alcohol/Ethylene Glycol/Volatiles	101
		LN11	Serum Ethanol Cal Ver/Lin	122
<b>Alcohol, whole blood</b>	X	<b>AL1</b>	Whole Blood Alcohol/Ethylene Glycol/Volatiles	101
Aldolase		ADL	Aldolase	71
Aldosterone, serum	X	RAP	Renin and Aldosterone	89

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Aldosterone, urine	X	N/NX	Urine Chemistry, Special	69
<b>Alkaline phosphatase (ALP)</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Allergens (specific)		SE	Diagnostic Allergy	207
<b>Alpha-1 antitrypsin</b>	X	<b>IG/IGX</b>	Immunology, General	202
		LN7	Immunology Cal Ver/Lin	121
Alpha-1 antitrypsin genotyping	X	AAT	Alpha-1 Antitrypsin Genotyping	239
Alpha-1 globulin		SPE	Protein Electrophoresis	76
Alpha-2 globulin		SPE	Protein Electrophoresis	76
Alpha-2-antiplasmin		CGE/CGEX	Coagulation, Extended	159
Alpha-2-macroglobulin		A2MG	Alpha-2-Macroglobulin	204
Alpha-fetoprotein (AFP), amniotic fluid	X	FP/FPX	Maternal Screen	87
<b>Alpha-fetoprotein (AFP), serum</b>	X	<b>FP/FPX</b>	Maternal Screen	87
		<b>K/KK</b>	Ligand Assay, General	82
		LN5	Ligand Assay Cal Ver/Lin	119–120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120
Alpha-hydroxyalprazolam		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
		HGM	Hemoglobinopathies, Molecular Methods	240
Alprazolam		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		OFD	Oral Fluid for Drugs of Abuse	100
		UT	Urine Toxicology	96

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Aluminum	X	R	Trace Metals	78
		TMU	Trace Metals, Urine	103
		TMWB	Trace Metals, Whole Blood	103
Amikacin	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
Amino acids, qualitative	X	BGL	Biochemical Genetics	239
Amino acids, quantitative		BGL	Biochemical Genetics	239
Amitriptyline		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
	X	ZT	TDM, Special	60
Ammonia		<b>C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN32	Ammonia Cal Ver/Lin	126
Amniotic fluid leakage (nitrazine)		AFL	Amniotic Fluid Leakage	146
Amobarbital		DFC	Drug-Facilitated Crime	107
Amphetamine		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
		UTCO	Urine Toxicology Carryover	131
Amphetamine group		DMPM	Drug Monitoring for Pain Management	106
		OFD	Oral Fluid for Drugs of Abuse	100
<b>Delayed until 2019</b>		T	Toxicology	96
		TQP	Toxicology Quality Program	108
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
<b>Amylase</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Amylase (cont.)</b>		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
<b>Amylase, pancreatic</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Amylase, urine		LN6	Urine Chemistry Cal Ver/Lin	120
	X	U	Urine Chemistry, General	68
Anabasine		NTA	Nicotine and Tobacco Alkaloids	102
Analytical balance		I	Instrumentation	129
<i>Anaplasma phagocytophilum</i>		TTD	Antibody Detection-Tick-Transmitted Diseases	200
Anaplastic lymphoma kinase		PM6	Anaplastic Lymphoma Kinase IHC	268
Androstenedione	X	Y/YY	Ligand Assay, Special	84
Angiotensin converting enzyme		ACE	Angiotensin Converting Enzyme	71
Anti-A titer		ABT, ABT1	Antibody Titer	217
Anti-B titer		ABT3	Antibody Titer	217
Anti-beta-2-glycoprotein		CGE/CGEX	Coagulation, Extended	159
<b>Antibody detection</b>	X	<b>J, JAT</b>	Transfusion Medicine	214–215
		JATE1	Transfusion Medicine, Automated, Educational	215
	X	PS	Platelet Serology	219
		TMCA	Transfusion Medicine, Competency Assessment	219
Antibody detection/identification (HLA)	X	MX1B, MX1C, MX1E, MXB, MXC	HLA Analysis, Class I	230–231
	X	MX2B, MX2C, MX2E, MXB, MXC	HLA Analysis, Class II	230–231
<b>Antibody identification</b>		ETME1	Expanded Transfusion Medicine Exercises	223

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Antibody identification (cont.)</b>	X	<b>J, JAT</b>	Transfusion Medicine	214–215
		JATE1	Transfusion Medicine, Automated, Educational	215
		TMCA	Transfusion Medicine, Competency Assessment	219
Antibody screen (HLA)		MX1B, MX1C, MX1E, MXB, MXC	HLA Analysis, Class I	230–231
		MX2B, MX2C, MX2E, MXB, MXC	HLA Analysis, Class II	230–231
Anticardiolipin IgA, qualitative		ACL, APS	Antiphospholipid Antibody	205
Anticardiolipin IgA, quantitative		ACL, APS	Antiphospholipid Antibody	205
Anticardiolipin IgG, IgM, polyclonal; qualitative	X	ACL, APS	Antiphospholipid Antibody	205
Anticardiolipin IgG, IgM, polyclonal; quantitative		ACL, APS	Antiphospholipid Antibody	205
Anti-CCP		CCP	Cyclic Citrullinated Peptide Antibody	206
Anticentromere antibody		S2	Immunology, Special	203
Antichromatin antibody		ACA	Antichromatin Antibody	204
Anti-CMV, total	X	VM3	Viral Markers-Series 3	224
	X	VR3	Infectious Disease Serology	200
Anti-CMV, IgG, IgM	X	VR3	Infectious Disease Serology	200
Anti-D titer		ABT, ABT2	Antibody Titer	217
Anti-DNA (ds) antibody, qualitative	X	S2, S4	Immunology, Special	203
Anti-DNA (ds) antibody, quantitative		S2, S4	Immunology, Special	203
Anti-DNA topoisomerase (Scl-70)		RDS	Rheumatic Disease Special Serologies	207
Antideamidated gliadin peptide antibody, IgA, IgG, qualitative	X	CES, CESX	Celiac Serology	206
Antideamidated gliadin peptide antibody, IgA, IgG, quantitative		CES, CESX	Celiac Serology	206
Antideamidated gliadin peptide antibody screen, IgA, IgG		CES, CESX	Celiac Serology	206
Antideamidated gliadin peptide/tissue transglutaminase antibody screen, IgA, IgG		CES, CESX	Celiac Serology	206
Antiendomysial antibody IgA, qualitative		CES, CESX	Celiac Serology	206

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Antiendomysial antibody IgA, quantitative		CES, CESX	Celiac Serology	206	Anti-HAV, IgM	X	VM5	Viral Markers-Series 5	225
Antiendomysial antibody IgG, qualitative		CES, CESX	Celiac Serology	206	Anti-HAV, IgG	X	VM1	Viral Markers-Series 1	224
Antiendomysial antibody IgG, quantitative		CES, CESX	Celiac Serology	206	Anti-HAV, total		VM1	Viral Markers-Series 1	224
Antifilamentous actin IgG antibody		FCN	Antifilamentous Actin Antibody	204	<b>Anti-HBc, IgM</b>	X	<b>VM5</b>	Viral Markers-Series 5	225
Antifungal susceptibility testing	X	F	Mycology and Aerobic Actinomycetes	184	<b>Anti-HBc, total</b>	X	<b>VM1</b>	Viral Markers-Series 1	224
	X	F1	Yeast	184	Anti-HBe	X	VM2	Viral Markers-Series 2	224
<b>Antigen detection, bacterial</b>		CDF2	<i>Clostridium difficile</i> Detection	178	Anti-HBs, qualitative	X	VM1	Viral Markers-Series 1	224
	X	<b>CDF5</b>	<i>Clostridium difficile</i> Detection	178	Anti-HBs, quantitative		VM1	Viral Markers-Series 1	224
	X	<b>D</b>	Bacteriology	170	Anti-HCV	X	RHCVV	Anti-HCV, Rapid Methods, Waived	225
	X	<b>D4</b>	Bacteriology, Limited	173		X	VM1	Viral Markers-Series 1	224
	X	<b>D6</b>	Rapid Group A Strep	175	Antihistidyl t-RNA synthetase (Jo-1)		RDS	Rheumatic Disease Special Serologies	207
	X	<b>D8</b>	Group B Strep	176	Antihistone antibody		AHT	Antihistone Antibody	204
	X	D9	Rapid Group A Strep, Waived	175	<b>Anti-HIV-1</b>	X	<b>AHIV</b>	Anti-HIV Rapid Methods	225
	X	<b>HC1</b>	<i>C. trachomatis</i> by DFA	178		X	AHIVW	Anti-HIV Rapid Methods	225
	X	<b>HC3</b>	<i>C. trachomatis</i> by EIA	178	Anti-HIV-2	X	VM1	Viral Markers-Series 1	224
		LBAS	<i>Legionella pneumophila</i>	176		X	<b>AHIV</b>	Anti-HIV Rapid Methods	225
	X	<b>MC1</b>	Microbiology Combination	173	<b>Anti-HIV-1/2</b>	X	<b>AHIV</b>	Anti-HIV Rapid Methods	225
	X	<b>MC2</b>	Microbiology Combination	173		X	AHIVW	Anti-HIV Rapid Methods	225
	X	<b>MC4</b>	Urine Colony Count Combination	174	<b>Anti-HIV-1/2, HIV-1 p24 antigen</b>	X	<b>VM6</b>	Viral Markers-Series 6	225
	X	<b>MC5</b>	Throat Culture/Rapid Strep Combination	174	Anti-HTLV-I/II		VM3	Viral Markers-Series 3	224
		POC4	POC Strep Screen Competency	52	Anti-Jo-1(antihistidyl t-RNA synthetase)		RDS	Rheumatic Disease Special Serologies	207
		SBAS	<i>Streptococcus pneumoniae</i>	176	Anti-LKM		LKM	Liver-Kidney Microsomal Antibody	207
	X	<b>VS</b>	Vaginitis Screen	181	<b>Antimicrobial susceptibility testing</b>	X	<b>D</b>	Bacteriology	170
<b>Antigen detection, viral</b>	X	<b>HC2</b>	HSV by DFA	192		X	<b>D2</b>	Urine Cultures	172
	X	<b>VR2</b>	Viral Antigen Detection by DFA	191		X	<b>D4</b>	Bacteriology, Limited	173
	X	<b>VR4</b>	Viral Antigen Detection by EIA and Latex	192		X	<b>D7</b>	Throat, Urine Cultures	172
Antigliadin antibody IgA, IgG, qualitative	X	CES, CESX	Celiac Serology	206			MBT	Microbiology Bench Tools Competency	171
Antigliadin antibody IgA, IgG, quantitative		CES, CESX	Celiac Serology	206		X	<b>MC1</b>	Microbiology Combination with GC	173
Antiglomerular basement membrane, qualitative	X	S2	Immunology, Special	203		X	<b>MC2</b>	Microbiology Combination	173
Antiglomerular basement membrane, quantitative		S2	Immunology, Special	203		X	<b>MC5</b>	Throat Culture/Rapid Strep	174
					Antimitochondrial antibody, qualitative	X	S2	Immunology, Special	203
					Antimitochondrial M2 antibody		H	Antimitochondrial M2 Antibody	204
					Anti-MPO		S2	Immunology, Special	203
					Antimüllerian hormone		AMH	Antimüllerian Hormone	84
					<b>Antimycobacterial susceptibility testing</b>	X	<b>E</b>	Mycobacteriology	183

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Antimycobacterial susceptibility testing (cont.)</b>		MTBR	Molecular MTB Detection and Resistance	183
Antineutrophil cytoplasmic antibody (ANCA)		S2	Immunology, Special	203
<b>Antinuclear antibody (ANA)</b>	X	ANA, IL	Immunology	202
Antiparietal cell antibody		APC	Autoimmune Gastritis Markers	204
Antiphospholipid antibody		ACL	Antiphospholipid Antibody	205
		CGE/CGEX	Coagulation, Extended	159
Antiphosphatidylserine antibodies (IgG, IgM, and IgA)		APS	Antiphosphatidylserine Antibodies	205
Anti-PR3		S2	Immunology, Special	203
Antiribosomal P antibody		ARP	Antiribosomal P Antibody	205
Anti-RNP antibody, qualitative	X	S2	Immunology, Special	203
Anti-RNP antibody, quantitative		S2	Immunology, Special	203
Anti- <i>Saccharomyces cerevisiae</i> antibody		ASC	Anti- <i>Saccharomyces cerevisiae</i> Antibody	205
Anti-Scl-70 (anti-DNA topoisomerase)		RDS	Rheumatic Disease Special Serologies	207
Anti-Sm antibody, qualitative	X	S2	Immunology, Special	203
Anti-Sm antibody, quantitative		S2	Immunology, Special	203
Anti-Sm/RNP antibody, qualitative	X	S2	Immunology, Special	203
Anti-Sm/RNP antibody, quantitative		S2	Immunology, Special	203
Antismooth muscle antibody	X	S2	Immunology, Special	203
Antisperm antibody IgG	X	ASA	Semen Analysis	154
Anti-SSA antibody, qualitative	X	S2	Immunology, Special	203
Anti-SSA antibody, quantitative		S2	Immunology, Special	203
Anti-SSB antibody, qualitative	X	S2	Immunology, Special	203
Anti-SSB antibody, quantitative		S2	Immunology, Special	203
Anti-SSA/SSB antibody, qualitative	X	S2	Immunology, Special	203
Anti-SSA/SSB antibody, quantitative		S2	Immunology, Special	203
<b>Antistreptolysin O (ASO)</b>	X	ASO, IL	Immunology	202

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Antithrombin (activity, Ag)		CGE/CGEX	Coagulation, Extended	159
		CGS2	Coag Special, Series 2	160-161
		LN35	Thrombophilia Cal Ver/Lin	127
Antithyroglobulin antibody, qualitative	X	S2, S4	Immunology, Special	203
Antithyroglobulin antibody, quantitative		S2, S4	Immunology, Special	203
Antithyroid microsomal, qualitative	X	S2, S4	Immunology, Special	203
Antithyroid microsomal, quantitative		S2, S4	Immunology, Special	203
Antithyroid peroxidase, qualitative	X	S2, S4	Immunology, Special	203
Antithyroid peroxidase, quantitative		S2, S4	Immunology, Special	203
Antitissue transglutaminase antibody IgA, qualitative	X	CES, CESX	Celiac Serology	206
Antitissue transglutaminase antibody IgA, quantitative		CES, CESX	Celiac Serology	206
Antitissue transglutaminase antibody IgG, qualitative		CES, CESX	Celiac Serology	206
Antitissue transglutaminase antibody IgG, quantitative		CES, CESX	Celiac Serology	206
Anti- <i>Trypanosoma cruzi</i>		VM4	Viral Markers-Series 4	224
Apixaban		APXBN	Anticoagulant Monitoring, Apixaban	161
Apolipoprotein A1	X	ABL	Accuracy-Based Lipids	110
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Apolipoprotein B	X	ABL	Accuracy-Based Lipids	110
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Apolipoprotein E (APOE) genotyping	X	APOE	Apolipoprotein E (APOE) genotyping	239
Aripiprazole		T	Toxicology	96
		UT	Urine Toxicology	96
Arsenic, urine		TMU	Trace Metals, Urine	103
Arsenic, whole blood		TMWB	Trace Metals, Whole Blood	103

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Arthropod identification		TMO	Ticks, Mites, and Other Arthropods	189
Aspartate aminotransferase (AST/SGOT)	X	C1, C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Aspirin assay		PIA, PIAX	Drug-Specific Platelet Aggregation	165
Astrovirus		GIP	Gastrointestinal Panel	199
Atenolol		T	Toxicology	96
		UT	Urine Toxicology	96
Atropine		T	Toxicology	96
		UT	Urine Toxicology	96
Automated WBC differential	X	FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
Autopsy pathology		AUP/AUP1	Autopsy Pathology	270
B-ALL		BALL	B-ALL Minimal Residual Disease	210
B-type natriuretic peptides	X	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	43
		LN30	B-Type Natriuretic Peptides Cal Ver/Lin	125
	X	PCARM, PCARMX	Plasma Cardiac Markers	65
		POC12	Competency Plasma Cardiac Markers	53
<i>Babesia microti</i>		TTD	Antibody Detection of Tick-Transmitted Diseases	200
Bacterial antigen detection		CDF2	<i>Clostridium difficile</i> Detection	178

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Bacterial antigen detection (cont.)	X	CDF5	<i>Clostridium difficile</i> Detection	178
	X	D	Bacteriology	170
	X	D4	Bacteriology, Limited	173
	X	D6	Rapid Group A Strep	175
	X	HC1	<i>C. trachomatis</i> by DFA	178
	X	HC3	<i>C. trachomatis</i> by EIA	178
		LBAS	<i>Legionella pneumophila</i> Antigen Detection	176
	X	MC1	Microbiology Combination	173
	X	MC2	Microbiology Combination	173
	X	MC4	Urine Colony Count Combination	174
	X	MC5	Throat Culture/Rapid Strep Combination	174
		POC4	POC Strep Screen Competency	52
		SBAS	<i>S. pneumoniae</i> Antigen Detection	176
	X	VS	Vaginitis Screen	181
Bacterial detection in platelets		BDP, BDPV	Bacterial Detection, Platelets	222
	X	BDP5, BDPV5	Bacterial Detection, Platelets	222
Bacterial identification	X	D	Bacteriology	170
	X	D1, D2, D3, D7	Throat, Urine, GC Cultures	172
	X	D4	Bacteriology, Limited	173
	X	D8	Group B Strep	176
		DEX	Expanded Bacteriology	171
	X	HC6/HC6X	<i>C. trachomatis</i> /GC by Nucleic Acid Amp	194
	X	HC7	<i>C. trachomatis</i> /GC DNA by NAA	194
	X	IDR	Infectious Disease, Respiratory Panel	198
	X	MC1	Microbiology Combination with GC	173
	X	MC2	Microbiology Combination	173
	X	MC4	Urine Colony Count Combination	174
	X	MC5	Throat Culture/Rapid Strep	174
		MBT	Microbiology Bench Tools Competency	171
		MRS	Methicillin-Resistant <i>Staphylococcus aureus</i> Screen	179

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Bacterial identification (cont.)</b>		MRS2M	MRSA Screen Molecular, 2 Challenge	179
	X	<b>MRS5</b>	Methicillin-Resistant <i>Staphylococcus aureus</i> Screen	179
	X	<b>MRS5M</b>	MRSA Screen, Molecular, 5 Challenge	179
Bacterial strain typing		BSTS	Bacterial Strain Typing- <i>Staphylococcus</i>	195
Bacterial vaginosis screen		BV	Bacterial Vaginosis	181
		VS2	Vaginitis Screen, Virtual Gram Stain	182
Barbiturate group		DMPM	Drug Monitoring for Pain Management	106
		SDS	Serum Drug Screen	101
		T	Toxicology	96
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
<i>BCR/ABL1 p190</i>		MH02, MH03	Molecular Hematologic Oncology	254
		MRD1	Minimal Residual Disease	254
<i>BCR/ABL1 p210</i>		MH02, MH03	Molecular Hematologic Oncology	254
		MRD	Minimal Residual Disease	254
Bence Jones protein		UBJP	Urinary Bence Jones Protein	76
Benzodiazepine group		DMPM	Drug Monitoring for Pain Management	106
		OFD	Oral Fluid for Drugs of Abuse	100
		SDS	Serum Drug Screen	101
		T	Toxicology	96
<b>Delayed until 2019</b>		TQP	Toxicology Quality Program	108
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
Benzoylcegonine		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Benzoylcegonine (cont.)		UTC0	Urine Toxicology Carryover	131
Beta-2-glycoprotein I		ACL, APS	Antiphospholipid Antibody	205
Beta-2-microglobulin, serum	X	TM/TMX	Tumor Markers	89
Beta-2-microglobulin, urine		CD	Cadmium	102
Beta-hydroxybutyrate	X	KET	Ketones	64
Beta globulin		SPE	Serum Electrophoresis	76
Beta-thalassemia		HGM	Hemoglobinopathies, Molecular Methods	240
Bile crystal identification		BCR	Bile Crystals	147
Bilirubin, confirmatory urine		DSC	Dipstick Confirmatory	147
Bilirubin, direct	X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
	X	NB, NB2	Neonatal Bilirubin	65
<b>Bilirubin, total</b>	X	<b>C1, C3, C3X, C4, CZ, CZ2X, CZX</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
	X	<b>NB, NB2</b>	Neonatal Bilirubin	65
Bilirubin, urine	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
		DSC	Dipstick Confirmatory	147
	X	HCC2	Waived Combination	66
		POC3	POC Urine Dipstick Competency	52
Bioavailable testosterone		DY	Ligand Assay, Special	84
Biochemical genetics		BGL, BGL1	Biochemical Genetics	239
Bioterrorism agents		LPX	Laboratory Preparedness Exercise	180

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
BK virus		ID1T	Nucleic Acid Amp, JC and BK	196
		VLS, VLS2	Viral Load	193
<b>Blood cell identification</b>	X	<b>BCP, BCP2</b>	Blood Cell Identification	134
		EHE1	Expanded Virtual Peripheral Blood Smear	142
	X	<b>FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P</b>	Hematology, Auto Diff	135
	X	<b>HEP</b>	Basic Hematology	134
		VPBS	Virtual Peripheral Blood Smear	141
		VBF	Virtual Body Fluid	146
Blood culture	X	BCS	Blood Culture	176
		GNBC	Gram-Negative Blood Culture Panel	199
		GPBC	Gram-Positive Blood Culture Panel	199
Blood culture <i>Staphylococcus aureus</i>		BCS1	Blood Culture <i>Staphylococcus aureus</i>	177
<b>Blood parasite</b>	X	<b>BP</b>	Blood Parasite	188
	X	<b>P</b>	Parasitology	187
Blood parasite, rapid		RMAL	Rapid Malaria	188
Bloom syndrome	X	MGL4	Molecular Genetics	241
Bocavirus		IDR	Infectious Disease Respiratory Panel	198
Body fluid case studies		VBF	Virtual Body Fluid	146
Body fluid (cell count)		ABF1, ABF2, ABF3	Automated Body Fluid	146
Body fluid (cell count)	X	HFC, HFCI	Hemocytometer Fluid Count	148-149
Body fluid cell identification		CMP/CMP1	Clinical Microscopy	144
Body fluid (chemistry)		FLD, FLD2	Body Fluid	72-73
Body fluid crystal identification		BFC	Crystals	147
Body fluid photographs		CMP, CMP1	Clinical Microscopy	144
Bone marrow cell differential		BMD	Bone Marrow Cell Differential	138
Bone marrow cell identification		BMD	Bone Marrow Cell Differential	138
Bone specific alkaline phosphatase		BMV2	Bone Markers and Vitamins	86
<b><i>Bordetella holmesii</i></b>	X	<b>IDR</b>	Nucleic Acid Amp, Organisms	198

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b><i>Bordetella parapertussis</i></b>		BOR	<i>Bordetella pertussis/parapertussis</i> , Molecular	177
		IDN, IDO	Nucleic Acid Amp, Organisms	196
	X	<b>IDR</b>	Infectious Disease Respiratory Panel	198
<b><i>Bordetella pertussis</i></b>		BOR	<i>Bordetella pertussis/parapertussis</i> , Molecular	177
		IDN, IDO	Nucleic Acid Amp, Organisms	196
	X	<b>IDR</b>	Infectious Disease Respiratory Panel	198
<i>Borrelia burgdorferi</i>		TTD	Antibody Detection of Tick-Transmitted Diseases	200
<b>BRAF</b>	X	BRAF	Mutation Testing	252
	X	MTP	Multigene Tumor Panel	253
<b>BRAF V600E</b>		BRAFV	BRAF V600E	267
<b>BRCA1/2</b>	X	MGL3	Molecular Genetics	241
<b>BRCA1/2 sequencing</b>	X	BRCA	BRCA1/2 Sequencing	240
<b>BRCA1/2 duplication/deletion analysis</b>		BRCA	BRCA1/2 Sequencing	240
Brain tissue by FISH		CYJ	Fluorescence In Situ Hybrid, Brain/Glioma Tissue	237
Brightfield in situ hybridization	X	ISH2	In Situ Hybridization	250
Brompheniramine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Buprenorphine		DMPM	Drug Monitoring for Pain Management	106
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
Bupropion		T	Toxicology	96
		UT	Urine Toxicology	96
Butalbital		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96



Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Butalbital (cont.)		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
<b>C. difficile</b>		CDF2	<i>Clostridium difficile</i> Detection	178
	X	<b>CDF5</b>	<i>Clostridium difficile</i> Detection	178
	X	<b>D</b>	Bacteriology, Antigen Detection	170
		GIP	Gastrointestinal Panel	199
		SP, SPN	Stool Pathogens-Rapid and Molecular	180
CA 15-3		LN34	Tumor Markers Cal Ver/ Lin	126
	X	TM/TMX	Tumor Markers	89
CA 19-9		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		LN34	Tumor Markers Cal Ver/ Lin	126
	X	TM/TMX	Tumor Markers	89
CA 27.29	X	TM/TMX	Tumor Markers	89
CA 72-4	X	TM/TMX	Tumor Markers	89
CA 125		LN34	Tumor Markers Cal Ver/ Lin	126
	X	TM/TMX	Tumor Markers	89
Cadmium, urine	X	CD	Cadmium	102
Cadmium, whole blood	X	CD	Cadmium	102
Caffeine	X	CZ2X, CZX, CZ, Z	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Calcitonin	X	TM/TMX	Tumor Markers	89
<b>Calcium</b>		ABS	Accuracy-Based Testosterone and Estradiol	111
	X	<b>C1, C3, C3X, C4, CZ, CZ2X, CZX</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Calcium, urine		ABU	Accuracy-Based Urine	111
		LN6	Urine Chemistry Cal Ver/Lin	120

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Calcium, urine (cont.)	X	U	Urine Chemistry, General	68
Calcium, ionized	X	AQ, AQ2, AQ3, AQ4	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN13C	Blood Gas Cal Ver/Lin	122-123
		POC10, POC11	POC Competency Blood Gases	53
Calcofluor white		FSM	Fungal Smear	186
<i>Campylobacter</i>		CAMP	<i>Campylobacter</i>	177
		GIP	Gastrointestinal Panel	199
Canavan disease	X	MGL4	Molecular Genetics	241
<b>Candida culture</b>	X	<b>F3</b>	<i>Candida</i> Culture	185
<b>Candida sp., DNA probe</b>	X	<b>VS</b>	Vaginitis Screen	181
Cannabinoids			See Delta-9-THC-COOH and Delta-9-THC	136
<b>Carbamazepine</b>	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
		T	Toxicology	96
		UT	Urine Toxicology	96
Carbamazepine-10,11-epoxide		T	Toxicology	96
		UT	Urine Toxicology	96
Carbamazepine, free	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Carboxyhemoglobin	X	SO	Blood Oximetry	94
		SOQ	Quality Cross Check, Blood Oximetry	46
Carisoprodol		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Carnitine	X	BGL1	Biochemical Genetics	239
Cast, urine, semiquantitative		UAA, UAA1	Automated Urinalysis	147

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
CD1a		RFAV1	Rare Flow Antigen Validation CD1a	212	<b>Chlamydia trachomatis (cont.)</b>		VR1	Virology Culture	191
CD3	X	FL, FL1	Lymphocyte Subset Immunophenotyping	209	<b>Chlamydophila pneumoniae</b>		IDN, IDO	Nucleic Acid Amp, Organisms	196
		LN22	Flow Cytometry Cal Ver/Lin	124		X	IDR	Infectious Disease, Respiratory Panel	198
		SCP	Stem Cell Processing	221	Chlordiazepoxide		T	Toxicology	96
CD4	X	FL, FL1	Lymphocyte Subset Immunophenotyping	209			UT	Urine Toxicology	96
		LN22	Flow Cytometry Cal Ver/Lin	124	<b>Chloride</b>	X	AQ, AQ2, AQ3, AQ4	Aqueous Blood Gas	92
CD8	X	FL, FL1	Lymphocyte Subset Immunophenotyping	209			AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
		LN22	Flow Cytometry Cal Ver/Lin	124		X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56–58
CD20		PM3	Immunohistochemistry	268			CZQ	Quality Cross Check, Chemistry and TDM	43
CD34		CBT	Cord Blood Testing	221			FLD2	Body Fluid Chemistry 2	73
	X	FL4	Flow Cytometry CD34+	209			IFS	Interfering Substances	130
		SCP	Stem Cell Processing	221			LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
CD45		CBT	Cord Blood Testing	221			LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
	X	FL, FL1	Lymphocyte Subset Immunophenotyping	209			LN13C	Blood Gas Cal Ver/Lin	122–123
		FL4	Flow Cytometry CD34+	209			POC10, POC11	POC Competency Blood Gases	53
		SCP	Stem Cell Processing	221	Chloride, sweat	X	SW1, SW2, SW3, SW4	Sweat Analysis Series	79
CD49d		ZAP70	ZAP-70 Analysis by Flow Cytometry	212	Chloride, urine		LN6	Urine Chemistry Cal Ver/Lin	120
CD103		RFAV2	Rare Flow Antigen Validation, CD103	212		X	U	Urine Chemistry, General	68
CD117 (c-kit)		PM1	Immunohistochemistry	268	Chloride, vitreous fluid		VF	Vitreous Fluid, Post-mortem	101
CEA		FLD	Body Fluid	72	Chlorpheniramine		DFC	Drug-Facilitated Crime	107
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44			FTC	Forensic Toxicology, Criminalistics	104
	X	K, KK, K2	Ligand Assay, General	82			T	Toxicology	96
		LN5	Ligand Assay Cal Ver/Lin	119–120			UT	Urine Toxicology	96
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120	<b>Cholesterol</b>		ABL	Accuracy-Based Lipids	110
Cell free DNA		CFDNA	Cell Free DNA	252		X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		NIPT	Non-invasive Prenatal Testing	87			CZQ	Quality Cross Check, Chemistry and TDM	43
Ceruloplasmin	X	S2, S4	Immunology, Special	203			FLD	Body Fluid	72
CFU-GM		SCP	Stem Cell Processing	221			FLDQ	Quality Cross Check, Body Fluid Chemistry	44
CH50		CH50	Total Hemolytic Complement	208					
CH100		CH50	CH100	208					
<b>Chlamydia trachomatis</b>	X	HC1	<i>C. trachomatis</i> by DFA	178					
	X	HC3	<i>C. trachomatis</i> by EIA	178					
	X	HC6, HC6X	<i>C. trachomatis</i> /GC by Nucleic Acid Amp	194					
	X	HC7	<i>C. trachomatis</i> /GC DNA by NAA	194					

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Cholesterol (cont.)</b>	X	LCW	Ltd Chem, Waived	64
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Chromium	X	R	Trace Metals	78
		TMWB	Trace Metals, Whole Blood	103
Chromium, urine		TMU	Trace Metals, Urine	103
Chromosomal abnormalities	X	CY, CYBK	Cytogenetics	236
Citalopram		DFC	Drug-Facilitated Crime	107
		T	Toxicology	96
		UT	Urine Toxicology	96
Citrate		KSA	Kidney Stone Risk Assessment	69
<b>CK isoenzymes</b>	X	CRTI	Cardiac Markers	62
	X	CRT, CRTI	Cardiac Markers	62
<b>CK-MB (immunochemical)</b>		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
	X	PCARM, PCARMX	Plasma Cardiac Markers	65
		POC12	Competency Plasma Cardiac Markers	53
CK2 (MB)		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Clinical pathology improvement program		CPIP/CPIP1	Quality Management, Education	14
Clomipramine		T	Toxicology	96
		UT	Urine Toxicology	96
Clonazepam		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Clonidine		DFC	Drug-Facilitated Crime	107
<b>Clostridium difficile</b>		CDF2	<i>Clostridium difficile</i> Detection	178

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Clostridium difficile (cont.)</b>	X	CDF5	<i>Clostridium difficile</i> Detection	178
	X	D	Bacteriology-Antigen Detection	170
		GIP	Gastrointestinal Panel	199
		SP, SPN	Stool Pathogens-Rapid and Molecular	180
Clozapine		T	Toxicology	96
		UT	Urine Toxicology	96
		ZE	Therapeutic Drug Monitoring, Extended	60
<b>CMV</b>		ID1	Nucleic Acid Amp, Viruses	196
		LN38	CMV Viral Load Cal Ver/Lin	127
		VLS, VLS2	Viral Load	193
	X	VM3	Viral Markers-Series 3	224
	X	VR1	Virology Culture	191
	X	VR2	Viral Antigen Detection by DFA	191
	X	VR3	Infectious Disease Serology	200
CO <sub>2</sub>	X	C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Cobalt		TMU	Trace Metals, Urine	103
		TMWB	Trace Metals, Whole Blood	103
Cocaethylene		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Cocaine		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
Codeine		DFC	Drug-Facilitated Crime	107

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Codeine (cont.)		DMPM	Drug Monitoring for Pain Management	106	Cotinine (cont.)		T	Toxicology	96
		FTC	Forensic Toxicology, Criminalistics	104			UT	Urine Toxicology	96
		OFD	Oral Fluid for Drugs of Abuse	100	C-peptide	X	ING	Insulin, Gastrin, C-Peptide, PTH	86
		T	Toxicology	96	C-reactive protein (CRP)	X	CRP, IL	Immunology	202
		UDC	Forensic Urine Drug Testing, Confirmatory	99			LN12, LN12E	C-Reactive Protein Cal Ver/Lin	122
		UT	Urine Toxicology	96	C-reactive protein, high-sensitivity (hsCRP)	X	HSCRP	High-Sensitivity C-Reactive Protein	64
<b>Compatibility testing</b>	X	J, JAT	Transfusion Medicine	214–215			LN21	High-Sensitivity C-Reactive Protein Cal Ver/Lin	124
		JATE1	Transfusion Medicine Automated, Educational	215	<b>Creatine kinase (CK)</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		TMCA	Transfusion Medicine, Competency Assessment	219			CZQ	Quality Cross Check, Chemistry and TDM	43
<b>Complement C3</b>	X	<b>IG/IGX</b>	Immunology, General	202			IFS	Interfering Substances	130
		LN7	Immunology Cal Ver/Lin	121			LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
<b>Complement C4</b>	X	<b>IG/IGX</b>	Immunology, General	202			LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		LN7	Immunology Cal Ver/Lin	121	<b>Creatinine</b>	X	<b>AQ2, AQ4</b>	Aqueous Blood Gas	92
Complexed PSA	X	K/KK	Ligand Assay, General	82			AQ2Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
Conductivity, sweat	X	SW1, SW2, SW3, SW4	Sweat Analysis Series	79		X	<b>C1, C3, C3X, C4, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
Connexin 26	X	MGL3	Molecular Genetics	241			CZQ	Quality Cross Check, Chemistry and TDM	43
Copper	X	R	Trace Metals	78			FLD	Body Fluid	72
Copper, urine		TMU	Trace Metals, Urine	103			FLDQ	Quality Cross Check, Body Fluid Chemistry	44
Copper, whole blood		TMWB	Trace Metals, Whole Blood	103			IFS	Interfering Substances	130
Coproporphyrins	X	N/NX	Urine Chemistry, Special	69			LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
Coronavirus		ID2	Nucleic Acid Amp, Respiratory	197			LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		IDR	Infectious Disease, Respiratory Panel	198			LN24	Creatinine Accuracy Cal Ver/Lin	125
<b>Cortisol</b>		ABS	Accuracy-Based Testosterone and Estradiol	111			SCO	Serum Carryover	131
	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58	<b>Creatinine, urine</b>		ABU	Accuracy-Based Urine	111
		CZQ	Quality Cross Check, Chemistry and TDM	43		X	BU	Bone and Mineral, Urine	85
	X	<b>K/KK</b>	Ligand Assay, General	82		X	CD	Cadmium	102
		LN5	Ligand Assay Cal Ver/Lin	119–120			DAI	Urine Drug Adulterant/ Integrity Testing	98
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120					
Cortisol, salivary		SALC	Salivary Cortisol	77					
Cortisol, urinary free	X	N/NX	Urine Chemistry, Special	69					
Cotinine		NTA	Nicotine and Tobacco Alkaloids	102					

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Creatinine, urine (cont.)		LN6	Urine Chemistry Cal Ver/Lin	120
		LN20	Urine Albumin Cal Ver/Lin	124
	X	U	Urine Chemistry, General	68
		UDC	Forensic Urine Drug Testing, Confirmatory	99
	X	UMC	Urine Albumin/ Creatinine	151
Creatinine, vitreous fluid		VF	Vitreous Fluid, Post-mortem	101
Creatinine, whole blood	X	WBCR	Whole Blood Creatinine	66
Crossmatching		EXM, EXM2	Electronic Crossmatch	215-216
	X	J, JAT	Transfusion Medicine	214-215
	X	MX1B, MX1C, MXB, MXC	HLA Analysis, Class I	230-231
	X	MX2B, MX2C, MXB, MXC	HLA Analysis Class II	230-231
		TMCA	Transfusion Medicine, Competency Assessment	219
Cryptococcal antigen detection	X	CRYP	Cryptococcal Antigen Detection	185
	X	F	Mycology and Aerobic Actinomycetes	184
	X	F1	Yeast	184
<i>Cryptococcus neoformans/gatti</i>		IDME	Meningitis/Encephalitis Panel	198
<i>Cryptosporidium</i>		GIP	Gastrointestinal Panel	199
<b>Cryptosporidium immunoassay, preserved specimen</b>	X	P, P3, P4, P5	Parasitology	187
Crystals, urine (semiquantitative)		UAA	Automated Urinalysis	147
Crystal identification (bile)		BCR	Bile crystals	147
Crystal identification (body fluid)		BFC	Body Fluid Crystals	147
Crystal identification (body fluid, urine and bile)		BFC	Body Fluid Crystals	147
Crystal identification (urine)		URC	Urine Crystals	147
CSF antigen detection	X	D	Bacteriology	170
C-telopeptide (CTX)		BMV5	Bone Markers and Vitamin	86
		BU	Bone and Mineral, Urine	85
Cyclic citrullinated peptide antibody		CCP	Anti-cyclic Citrullinated Peptide Antibody	206

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Cyclobenzaprine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
<i>Cyclospora cayatanensis</i>		GIP	Gastrointestinal Panel	199
Cyclosporine	X	CS	Immunosuppressive Drugs	59
		LN31	Immunosuppressive Drugs Cal Ver/Lin	126
CYP2C9		PGX	Pharmacogenetics	243
CYP2C19		PGX	Pharmacogenetics	243
CYP2D6		PGX	Pharmacogenetics	243
CYP3A4		PGX	Pharmacogenetics	243
CYP3A5		PGX	Pharmacogenetics	243
Cystatin C		CYS	Cystatin C	74
Cystic fibrosis	X	MGL2, MGL5	Molecular Genetics	241
Cystine		KSA	Kidney Stone Risk Assessment	69
Cytogenomic microarray		CYCGH	Constitutional Microarray Analysis	238
		CYMA	Cytogenomic Microarray Analysis for Oncologic Abnormality	238
<b>Cytology proficiency testing</b>			See Cytopathology GYN proficiency testing	136
Cytomegalovirus (CMV)		ID1	Nucleic Acid Amp, Viruses	196
		IDME	Meningitis/Encephalitis Panel	198
		LN38	CMV Viral Load Cal Ver/Lin	127
		VLS, VLS2	Viral Load	193
	X	VM3	Viral Markers-Series 3	224
	X	VR1	Virology Culture	191
	X	VR2	Virology by DFA	191
	X	VR3	Infectious Disease Serology	200
Cytopathology GYN education		PAPCE1	PAP Edu, Conventional	273
		PAPJE1	PAP Edu, All Technologies	273
		PAPKE1	PAP Edu, SurePath	273
		PAPME1	PAP Edu, ThinPrep	273
<b>Cytopathology GYN proficiency testing</b>		PAPCPT	PAP PT, Conventional	272
		PARJPT	PAP PT, Combination	272
		PAPKPT	PAP PT, SurePath	272
		PAPLPT	PAP PT, Combination	272
		PAPMPT	PAP PT, ThinPrep	272

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Cytopathology, nongynecologic		FNA/FNA1	Fine-Needle Aspiration-Online	277	Desipramine (cont.)		FTC	Forensic Toxicology, Criminalistics	104
		FNAG/FNAG1	Fine-Needle Aspiration-Glass	278			T	Toxicology	96
		NGC/NGC1	Nongynecologic Cytopath Edu Prgm	276			UT	Urine Toxicology	96
Cytopreparation differential		HFC	Hemocytometer Fluid Count	148		X	ZT	TDM, Special	60
Dabigatran		DBGN	Anticoagulant Monitoring, Dabigatran	161	Desmethylclomipramine		T	Toxicology	96
D-dimer, qualitative		CGDF	Coagulation, D-dimer/FDP	158			UT	Urine Toxicology	96
		CGL	Coagulation, Limited	158	Desmethylcyclobenzaprine		FTC	Forensic Toxicology, Criminalistics	104
D-dimer, quantitative	X	CGDF	Coagulation, D-dimer/FDP	158			T	Toxicology	96
	X	CGL	Coagulation, Limited	158			UT	Urine Toxicology	96
		CGLQ	Quality Cross Check, Coagulation, Limited	49	Desmethylsertraline		T	Toxicology	96
		LN42	D-dimer Cal Ver/Lin	128			UT	Urine Toxicology	96
	X	PCARM, PCARMX	Plasma Cardiac Markers	65	Dextromethorphan		DFC	Drug-Facilitated Crime	107
		POC12	Competency Plasma Cardiac Markers	53			FTC	Forensic Toxicology, Criminalistics	104
Delta-9-THC		FTC	Forensic Toxicology, Criminalistics	104			T	Toxicology	96
		OFD	Oral Fluid for Drugs of Abuse	100			UT	Urine Toxicology	96
		T	Toxicology	96	DHEA sulfate	X	Y/YY	Ligand Assay, Special	84
		UT	Urine Toxicology	96	DIA (Dimeric inhibin A)	X	FP/FPX	Maternal Screen	87
Delta-9-THC-COOH		DFC	Drug-Facilitated Crime	107	Diazepam		DMPM	Drug Monitoring for Pain Management	106
		DMPM	Drug Monitoring for Pain Management	106			FTC	Forensic Toxicology, Criminalistics	104
		FTC	Forensic Toxicology, Criminalistics	104			OFD	Oral Fluid for Drugs of Abuse	100
		OFD	Oral Fluid for Drugs of Abuse	100			T	Toxicology	96
		T	Toxicology	96			UT	Urine Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99	<b>Differential, automated</b>	X	<b>FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P</b>	Hematology, Auto Diff	135
		UDS, UDS6	Urine Drug Screen	98			FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
		UT	Urine Toxicology	96	Differential (fluid), manual		HFC, HFCI	Hemocytometer Fluid Count	148-149
		UTCO	Urine Toxicology Carryover	131	Differential (blood), manual		EHE1	Expanded Virtual Peripheral Blood Smear	142
Deoxyipyridinoline (DPD)		BU	Bone and Mineral, Urine	85			VPBS	Virtual Peripheral Blood Smear	141
Dermatopathology		DPATH/DPATH1	Online Digital Slide Program	259	Differential (bone marrow), manual		BMD	Bone Marrow Cell Differential	138
<b>Dermatophyte identification</b>	X	F	Mycology and Aerobic Actinomycetes	184	Digital slide program in fine-needle aspiration, online		FNA/FNA1	Online Digital Slide Program	277
Desalkylflurazepam		T	Toxicology	96	<b>Digoxin</b>	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56-58
		UT	Urine Toxicology	96					
Desipramine		DFC	Drug-Facilitated Crime	107					

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Digoxin (cont.)</b>		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
Digoxin, free	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Dihydrocodeine		T	Toxicology	96
		UT	Urine Toxicology	96
Diltiazem		T	Toxicology	96
		UT	Urine Toxicology	96
Dilute prothrombin time		CGE/CGEX	Coagulation, Extended	159
Dilute Russell's viper venom time		CGE/CGEX	Coagulation, Extended	159
Dimeric inhibin A (DIA)	X	FP, FPX	Maternal Screen	87
Diphenhydramine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Diphenylhydantoin			See Phenytoin	
Direct antiglobulin testing	X	DAT	Direct Antiglobulin Testing	218
		TMCAD	Transfusion Medicine, Competency Assessment	219
Direct bilirubin	X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
	X	NB, NB2	Neonatal Bilirubin	65
Disease association/ drug risk		DADR1, DADR2	Disease Association/ Drug Risk	233
Disopyramide	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
DMD/Becker	X	MGL2	Molecular Genetics	241
DNA analysis	X	DML	HLA Molecular Typing	231
		FID	Forensic Identity	280
		MHO	Molecular Oncology	254
	X	PARF	Parentage/Relationship	227
DNA content/cell cycle analysis		FL, FL2	Flow Cytometry	209

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
DNA extraction and amplification		MH05	Molecular Oncology Hematologic	251, 254
DNA fingerprinting		IDN, IDO	Nucleic Acid Amp, Organisms	196
DNA mismatch repair		HQMRR	HistoQIP Mismatch Repair IHC	264
		MMR	DNA Mismatch Repair	267
DNA sequencing		SEC, SEC1	DNA Sequencing	242
Dopamine	X	N/NX	Urine Chemistry, Special	69
Doxepin		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Doxylamine		DFC	Drug-Facilitated Crime	107
		T	Toxicology	96
		UT	Urine Toxicology	96
<i>DPYD</i>		PGX3	Pharmacogenetics	243
Duloxetine		T	Toxicology	96
		UT	Urine Toxicology	96
Ecgonine ethyl ester		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Ecgonine methyl ester		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
<i>E. coli</i> O157		GIP	Gastrointestinal Panel	199
EGFR-Epidermal growth factor receptor	X	EGFR	Mutation Testing	252
	X	MTP	Multigene Tumor Panel	253
eGFR		LN24	Creatinine Accuracy CalVer/Lin	125
Electronic crossmatch		EXM, EXM2	Electronic Crossmatch	215–216
Electrophoresis	X	HG	Hemoglobinopathy	139
		LPE	Lipoprotein Electrophoresis	76
	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
	X	SPE	Protein Electrophoresis	76
		UBJP	Urinary Bence Jones Proteins	76
Elution, antibody		ELU	Eluate	218
		TMCAE	Eluate Competency Assessment	220
Embryology		EMB	Embryology	155
Enterococcal agglutination (EAEC)		GIP	Gastrointestinal Panel	199

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Enteropathogenic <i>E. coli</i> (EPEC)		GIP	Gastrointestinal Panel	199	<b>Ethanol</b>	X	<b>AL1</b>	Whole Blood Alcohol/Ethylene Glycol/Volatiles	101
Enterotoxigenic <i>E. coli</i> (ETEC)		GIP	Gastrointestinal Panel	199		X	<b>AL2</b>	Serum Alcohol/Ethylene Glycol/Volatiles	101
<b>Enterovirus</b>		ID1	Nucleic Acid Amp, Viruses	196			LN11	Serum Ethanol Cal Ver/Lin	122
		IDME	Meningitis/Encephalitis Panel	198	Ethanol, urine		UDS, UDS6	Urine Drug Screen	98
	X	<b>IDR</b>	Infectious Disease, Respiratory Panel	198	Ethanol, vitreous fluid		VF	Vitreous Fluid, Post-mortem	101
	X	<b>VR1</b>	Virology Culture	191	ETEC (Enterotoxigenic <i>E. coli</i> )		GIP	Gastrointestinal Panel	199
Eosinophils, urine		SCM2	Special Clinical Microscopy	150	<b>Ethosuximide</b>	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58
Ephedrine		FTC	Forensic Toxicology, Criminalistics	104			CZQ	Quality Cross Check, Chemistry and TDM	43
		T	Toxicology	96	Ethylene glycol		AL1	Whole Blood Alcohol/Ethylene Glycol/Volatiles	101
		UT	Urine Toxicology	96			AL2	Serum Alcohol/Ethylene Glycol/Volatiles	101
Epidermal growth factor receptor ( <i>EGFR</i> )	X	EGFR	Mutation Testing	252	Ethyl glucuronide (EtG)		ETB	Ethanol Biomarkers	102
	X	MTP	Multigene Tumor Panel	253	Ethyl sulfate (EtS)		ETB	Ethanol Biomarkers	102
Epinephrine		N/NX	Urine Chemistry, Special	69	Euglobulin Test		CGE/CGEX	Coagulation, Extended	159
Epithelial cells, urine, semiquantitative		UAA1	Automated Urinalysis	147	Everolimus		EV	Everolimus	59
Epstein-Barr virus (EBV)		ID1	Nucleic Acid Amp, Viruses	196	Factor II		CGE/CGEX	Coagulation, Extended	159
		ISH	In Situ Hybridization	250	Factor II mutation	X	TPM	Thrombophilia Mutations	244
		VLS, VLS2	Viral Load	193		X	MGL1	Molecular Genetics	241
		VR3	Antibody Detection-Infectious Disease Serology	200	Factor V		CGE/CGEX	Coagulation, Extended	159
ER, PgR by immunohistochemistry	X	PM2	ER, PgR by Immunohistochemistry	269	Factor V Leiden mutation	X	MGL1	Molecular Genetics	241
Erythrocyte sedimentation rate		ESR, ESR1, ESR2, ESR3	Erythrocyte Sedimentation Rate	134		X	TPM	Thrombophilia Mutations	244
Erythropoietin		EPO	Erythropoietin	86	Factor VII		CGE/CGEX	Coagulation, Extended	159
<i>Escherichia coli</i> K1		IDME	Meningitis/Encephalitis Panel	198	Factor VIII	X	CGE/CGEX	Coagulation, Extended	159
<i>Escherichia coli</i> O157		GIP	Gastrointestinal Panel	199		X	CGS3	Coag Special, Series 3	160–161
Estradiol		ABS	Accuracy-Based Testosterone and Estradiol	111	Factor VIII inhibitor		CGE/CGEX	Coagulation, Extended	159
		LN8	Reproductive Endocrinology Cal Ver/Lin	121	Factor IX		CGE/CGEX	Coagulation, Extended	159
	X	Y/YY	Ligand Assay, Special	84	Factor X		CGE/CGEX	Coagulation, Extended	159
Estriol, unconjugated (uE3)	X	FP/FPX	Maternal Screen	87	Factor XI		CGE/CGEX	Coagulation, Extended	159
	X	Y/YY	Ligand Assay, Special	84	Factor XII		CGE/CGEX	Coagulation, Extended	159
Estrogen receptors by immunohistochemistry	X	PM2	ER, PgR by Immunohistochemistry	269	Factor XIII		CGE/CGEX	Coagulation, Extended	159
					Familial dysautonomia	X	MGL4	Molecular Genetics	241
					Fanconi anemia, complementation grp. C	X	MGL4	Molecular Genetics	241
					Fecal fat, qualitative		FCFS	Fecal Fat	75
					Fecal lactoferrin		FLAC	Fecal Lactoferrin	178
					Fentanyl		DFC	Drug-Facilitated Crime	107
							DMPM	Drug Monitoring for Pain Management	106



Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Fentanyl (cont.)		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
Fern test (vaginal)	X	CMMP	Clinical Microscopy, Misc	145
Ferritin	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	K, KK, K2	Ligand Assay, General	82
		LN5	Ligand Assay Cal Ver/Lin	119-120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119-120
Fetal fibronectin	X	FF	Fetal Fibronectin	86
Fetal hemoglobin (gastric fluid)		APT	Fetal Hemoglobin	148
Fetal hemoglobin identification	X	HG	Hemoglobinopathy	139
Fetal membrane rupture		ROM1	Rupture of Fetal Membrane	150
Fetal red cell quantitation	X	HBF	Fetal Red Cell Detection	218
		TMCAF	Transfusion Medicine, Competency Assessment	220
Fetal screen (Rosette testing)	X	HBF	Fetal Red Cell Detection	218
		TMCAF	Transfusion Medicine, Competency Assessment	220
Fibrin monomer		CGE/CGEX	Coagulation, Extended	159
<b>Fibrinogen</b>	X	<b>CGL</b>	Coagulation, Limited	158
		CGLQ	Quality Cross Check, Coagulation, Limited	49
		LN44	Fibrinogen, Cal Ver/Lin	128
Fibrinogen antigen		CGE/CGEX	Coagulation, Extended	159
Fibrinogen degradation products, plasma		CGDF	Coagulation, D-dimer/ FDP	158
		CGL	Coagulation, Limited	158
		CGLQ	Quality Cross Check, Coagulation, Limited	49
Fibrinogen degradation products, serum		CGDF	Coagulation, D-dimer/ FDP	158
		CGL	Coagulation, Limited	158
		CGLQ	Quality Cross Check, Coagulation, Limited	49
Fine-needle aspiration, digital slide program		FNA/FNA1	Online Digital Slide Program	277

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Fine-needle aspiration, glass slides		FNAG/FNAG1	Fine-Needle Aspiration	278
FISH for breast carcinoma hybridization and interpretation on site ( <i>HER2</i> gene amplification)	X	CYH	Fluorescence In Situ Hybridization, Breast Cancer	237
FISH for brain/glioma		CYJ	Fluorescence In Situ Hybridization, Brain/ Glioma Tissue	237
FISH for constitutional and hematologic disorders		CYF	Fluorescence In Situ Hybridization	236
FISH for lymphoma		CYL	Fluorescence In Situ Hybridization, Lymphoma	237
FISH for paraffin-embedded tissue		CYH	Fluorescence In Situ Hybridization, Breast Cancer	237
		CYJ	Fluorescence In Situ Hybridization, Brain/ Glioma Tissue	237
		CYK	Fluorescence In Situ Hybridization, Sarcoma Tissue or Pediatric Neoplasm	237
		CYL	Fluorescence In Situ Hybridization, Lymphoma	237
FISH for sarcoma		CYK	Fluorescence In Situ Hybridization, Sarcoma Tissue or Pediatric Neoplasm	237
FISH for urothelial carcinoma hybridization and interpretation on-site	X	CYI	Fluorescence In Situ Hybridization, Urothelial Carcinoma	236
Flunitrazepam		T	Toxicology	96
		UT	Urine Toxicology	96
Fluorescent microscope check		I	Instrumentation	129
Fluoxetine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Flurazepam		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Folate, RBC	X	FOL	RBC Folate	88
Folate, serum	X	K, KK, K2	Ligand Assay, General	82

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Folate, serum (cont.)		LN5	Ligand Assay Cal Ver/Lin	119–120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120
Follicle-stimulating hormone (FSH)		ABS	Accuracy-Based Testosterone, Estradiol	111
		LN8	Reproductive Endocrinology Cal Ver/Lin	121
	X	Y/Y	Ligand Assay, Special	84
Fondaparinux		FNPX	Anticoagulant Monitoring, Fondaparinux	161
Forensic identity (DNA)		FID	Forensic Identity	280
Forensic pathology		FR/FR1	Forensic Pathology	281
Forensic toxicology		FTC	Forensic Toxicology, Criminalistics	104
Fragile X	X	MGL1	Molecular Genetics	241
Free beta hCG		FP1B	First Trimester Maternal Screening, Free Beta	87
Free testosterone	X	DY	Ligand Assay, Special	84
Friedreich ataxia	X	MGL2	Molecular Genetics	241
Fructosamine		FT	Fructosamine	75
Fungal culture		CBT	Cord Blood Testing	221
		SCP	Stem Cell Processing	221
Fungal serology		FSER	Fungal Serology	185
<b>Fungus identification</b>	X	<b>F</b>	Mycology and Aerobic Actinomycetes	184
	X	<b>F1</b>	Yeast	184
	X	<b>F3</b>	<i>Candida</i> culture	185
Gabapentin		DMPM	Drug Monitoring for Pain Management	106
		T	Toxicology	96
		UT	Urine Toxicology	96
		ZE	Therapeutic Drug Monitoring, Extended	60
Galactomannan		FGAL	Galactomannan	185
Gamma globulin		M, OL1	CSF Chemistry	74
		SPE	Serum Electrophoresis	76
Gamma glutamyl transferase (GGT)	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Gamma hydroxybutyrate		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
<b>Gardnerella vaginalis, DNA Probe</b>	X	<b>VS</b>	Vaginitis Screen	181
Gastric occult blood		GOCB	Gastric Occult Blood	148
Gastric pH		GOCB	Gastric Occult Blood	148
Gastrin	X	ING	Insulin, Gastrin, C-Peptide, PTH	86
Gaucher disease	X	MGL4	Molecular Genetics	241
Genomic copy number array		CYCGH	Constitutional Microarray Analysis	238
<b>Gentamicin</b>	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
<i>Giardia</i>		GIP	Gastrointestinal Panel	199
<b>Giardia immunoassay, preserved specimen</b>	X	<b>P, P3, P4, P5</b>	Parasitology	187
<b>Giemsa stain</b>	X	<b>BP</b>	Blood Parasite	188
	X	<b>P</b>	Parasitology	187
Glioma by FISH		CYJ	Fluorescence In Situ Hybridization, Brain/Glioma Tissue	237
<b>Glucose</b>	X	<b>AQ2, AQ4</b>	Aqueous Blood Gas	92
		AQ2Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	<b>C1, C3, C3X, C4, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Glucose, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
Glucose, urine	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Glucose, urine (cont.)	X	HCC2	Waived Combination	66
		LN6	Urine Chemistry Cal Ver/Lin	120
		POC3	POC Urine Dipstick Competency	52
Glucose, vitreous fluid	X	U	Urine Chemistry, General	68
		VF	Vitreous Fluid, Post-mortem	101
		HCC	Waived Combination	66
Glucose, whole blood	X	HCC2	Waived Combination	66
		LCW	Ltd Chem, Waived	64
		LN17	Whole Blood Glucose Cal Ver/Lin	123
		POC2	POC Glucose Competency	52
		POC7	POC/Waived Glucose and Hemoglobin Competency	52
		WBGQ	Quality Cross Check, Whole Blood Glucose	43
Glucose-6-phosphate dehydrogenase (qualitative and quantitative)		G6PDS	Glucose-6 Phosphate Dehydrogenase	75
Glutaraldehyde, urine		DAI	Urine Drug Adulterant/ Integrity Testing	98
Glycated serum albumin		GSA	Glycated Serum Albumin	64
Glycogen storage disease type 1A	X	MGL4	Molecular Genetics	241
Glycohemoglobin	X	GH2, GH5, GH5I	Hemoglobin A <sub>1c</sub>	63
		GHQ	Quality Cross Check, Hemoglobin A <sub>1c</sub>	44
		LN15	Hemoglobin A <sub>1c</sub> Cal Ver/Lin	123
Glycosaminoglycans (mucopolysaccharides)		BGL	Biochemical Genetics	239
<b>Gram stain</b>	X	D	Bacteriology	170
		D2, D3, D7	Throat, Urine, GC Cultures	172
		D4	Bacteriology, Ltd	173
		D5	Gram Stain	174
		MC1	Microbiology Combination with GC	173
		MC2	Microbiology Combination	173
		MC5	Throat Culture/Rapid Strep	174
	VGS1	Virtual Gram Stain Basic	175	

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Gram stain (cont.)</b>		VGS2	Virtual Gram Stain Advanced	175
		VS2	Vaginitis Screen, Virtual Gram stain	182
<b>Group A Streptococcus antigen detection</b>	X	D	Bacteriology	170
		D4	Bacteriology, Limited	173
		D6	Rapid Group A Strep	175
		D9	Rapid Group A Strep, Waived	175
		MC1	Microbiology Combination with GC	173
	X	MC2	Microbiology Combination	173
	X	MC4	Urine Colony Count Combination	174
	X	MC5	Throat Culture/Rapid Strep	174
		POC4	POC Strep Screen Competency	52
<b>Group B Streptococcus</b>	X	D8	Group B Strep	176
Growth hormone	X	Y/YY	Ligand Assay, Special	84
<b>Gyn cytopathology</b>			See Cytopathology GYN Proficiency Testing	
Gyn cytopathology education			See Cytopathology GYN Education	
<i>Haemophilus influenzae</i>		IDME	Meningitis/Encephalitis Panel	198
Haptoglobin	X	IG/IGX	Immunology, General	202
		S2/S4	Immunology, Special	203
<b>HBeAg</b>	X	VM2	Viral Markers-Series 2	224
<b>HBsAg</b>	X	VM1	Viral Markers-Series 1	224
HBV	X	HBVL, HBVL5	Hepatitis Viral Load	193
		NAT	Nucleic Acid Testing	226
HCV	X	HCV2	Hepatitis Viral Load, Genotyping and Qualitative	193
		LN45	HCV Viral Load Cal Ver/Lin	127
		NAT	Nucleic Acid Testing	226
<b>HDL cholesterol</b>		ABL	Accuracy-Based Lipid	110
	X	C1, C3, C3X, C4, CZ, CZ3X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	LCW	Ltd Chem, Waived	64
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
HDL cholesterol (cont.)		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118	Hemoglobin (cont.)		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
<i>Helicobacter pylori</i>	X	HPS	<i>H. pylori</i> Antigen, Stool	178		X	FH15	Centrifugal Hematology	135
	X	S2, S4	<i>H. pylori</i> IgG Antibody	203		X	HCC	Waived Combination	66
	X	S5	<i>H. pylori</i> IgG Antibody	203		X	HCC2	Waived Combination	66
	X	VR3	<i>H. pylori</i> IgG Antibody	200		X	HE, HEP	Basic Hematology	134
Hematocrit	X	AQ, AQ2, AQ3, AQ4	Aqueous Blood Gas	92			LN9	Hematology Cal Ver/Lin	121
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46			POC7	POC/Waived Glucose and Hemoglobin Competency	52
		CBT	Cord Blood Testing	221		X	SO	Stem Cell Processing	221
	X	FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135			SOQ	Blood Oximetry	94
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47	Hemoglobin electrophoresis	X	HG	Quality Cross Check, Blood Oximetry	46
	X	FH15	Centrifugal Hematology	135	Hemoglobin, estimated	X	AQ, AQ2, AQ3, AQ4	Hemoglobinopathy	139
	X	HCC2	Waived Combination	66			AQQ, AQ2Q, AQ3Q, AQ4Q	Aqueous Blood Gas	92
	X	HE, HEP	Basic Hematology	134			POC10, POC11	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
		POC10, POC11	POC Competency Blood Gases	53			POC10, POC11	POC Competency Blood Gases	53
		SCP	Stem Cell Processing	221	Hemoglobin, plasma		PHG	Plasma Hemoglobin	76
	X	SO	Blood Oximetry	94	Hemoglobin, urine	X	CMP, CMP1	Clinical Microscopy	144
		SOQ	Quality Cross Check, Blood Oximetry	46			CMQ	Quality Cross Check, Urinalysis	48
Hematology case studies		EHE1	Expanded Virtual Peripheral Blood Smear	142		X	HCC2	Waived Combination	66
		BMD	Bone Marrow Cell Differential	138			POC3	POC Urine Dipstick Competency	52
		VPBS	Virtual Peripheral Blood Smear	141	Hemoglobin A <sub>1c</sub>	X	GH2, GH5, GH5I	Hemoglobin A <sub>1c</sub>	63
Hematopathology online education		HPATH, HPATH1	Hematopathology Online Education	143			GHQ	Quality Cross Check, Hemoglobin A <sub>1c</sub>	44
Hemochromatosis	X	MGL1	Molecular Genetics	241			LN15	Hemoglobin A <sub>1c</sub> Cal Ver/Lin	123
Hemocytometer fluid count	X	HFC, HFCI	Hemocytometer Fluid Count	148-149	Hemoglobin A2 quantitation	X	HG	Hemoglobinopathy	139
Hemoglobin		CBT	Cord Blood Testing	221	Hemoglobin F quantitation	X	HG	Hemoglobinopathy	139
	X	FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135	Hemoglobin S/C	X	HGM	Hemoglobinopathies Genotyping	240
						X	MGL2	Molecular Genetics	241
					Hemolytic complement, total		CH50	Total Hemolytic Complement	208
					Hemosiderin, urine		SCM1	Special Clinical Microscopy	150
					Heparin assay		CGS4	Coag Special, Series 4	160-161
					Heparin-induced thrombocytopenia		CGE/CGEX	Coagulation, Extended	159

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Heparin-induced thrombocytopenia (cont.)		CGS5	Coag Special, HIT	160–161
		CGS6	Coagulation Special	160–161
		CGS8	Coag Special, HIT	160–161
Heparin, low molecular weight		LN36	Heparin Cal Ver/Lin	127
Heparin, unfractionated		LN36	Heparin Cal/Ver Lin	127
Heparin/platelet Factor IV		CGS5	Coag Special, HIT	160–161
		CGS6	Coagulation Special	160–161
Hepatitis B virus	X	HBVL, HBVL5	Hepatitis Viral Load	193
Hepatitis C virus	X	HCV2	Hepatitis Viral Load, Genotyping and Qualitative	193
		LN45	HCV Viral Load Cal Ver/Lin	127
HER2, gastric		GHER2	Gastric HER2	269
HER2 gene amplification by ISH	X	ISH2	In Situ Hybridization	250
HER2 gene amplification by FISH, hybridization and interpretation on site	X	CYH	Fluorescence In Situ Hybridization, Breast Cancer	237
HER2 by immunohistochemistry	X	HER2	HER2 by Immunohistochemistry	269
HER2 by molecular testing		MTP	Multigene Tumor Panel	253
Herpes simplex virus (HSV)	X	HC2	HSV by DFA	192
	X	HC4	HSV Culture	192
		ID1	Nucleic Acid Amp, Viruses	196
		IDME	Meningitis/Encephalitis Panel	198
	X	VR1	Virology Culture	191
	X	VR2	Viral Antigen by DFA	191
	X	VR3	Antibody Detection-Infectious Disease Serology	200
HHV6		ID1	Nucleic Acid Amp, Viruses	196
		IDME	Meningitis/Encephalitis Panel	198
		VLS2	Viral Load	193
HHV8		ID1	Nucleic Acid Amp, Viruses	196
High molecular weight kininogen		CGE/CGEX	Coagulation, Extended	159
High-sensitivity C-reactive protein	X	HSCRCP	hsCRP	64

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
High-sensitivity C-reactive protein (cont.)		LN21	High-Sensitivity C-Reactive Protein Cal Ver/Lin	124
Histotechnology quality improvement		HQIP, HQIPBX, HQBX1, HQBX2, HQBX3, HQBX4, HQIHC, HQMMR, HQNSC	HistoQIP	263–266
HIV	X	HIVG, HV2	HIV Viral Load	193
		LN39	HIV Viral Load Cal Ver/Lin	127
	X	NAT	Nucleic Acid Testing	226
HIV genotyping		HIVG	HIV Viral Genotyping	193
HIV-1 p24 antigen	X	VM3	Viral Markers-Series 3	224
HIV-1 p24 antigen, <b>Anti HIV 1/2</b>	X	VM6	Viral Markers-Series 6	225
HLA-A, -B, -C antibody identification	X	MX1B, MX1C, MX1E, MXB, MXC	HLA Analysis, Class I	230–231
	X	MX2B, MX2C, MX2E, MXB, MXC	HLA Analysis, Class II	230–231
HLA-(Class I/II) crossmatching	X	MX1B, MX1C, MX1E, MXB, MXC	HLA Analysis, Class I	230–231
	X	MX2B, MX2C, MX2E, MXB, MXC	HLA Analysis, Class II	230–231
HLA-(Class I/II) antibody screen		MX1B, MX1C, MX1E, MX2B, MX2C, MX2E, MXB, MXC	HLA Analysis, Class I/II	230–231
HLA-B*1502		PGX2	Pharmacogenetics	243
HLA-B27 typing	X	B27	HLA-B27 Typing	231
HLA-B*5701		PGX2	Pharmacogenetics	243
		DADR1	Disease Association, Drug Risk	233
HLA-B*57:01		DADR1	Disease Association, Drug Risk	233
HLA-B*58:01		DADR1	Disease Association, Drug Risk	233
HLA-DQA1*03/DQB1*03:02		DADR2	Disease Association, Drug Risk	233
HLA-DQA1*05/DQB1*02		DADR2	Disease Association, Drug Risk	233
HLA molecular typing	X	DML	HLA Molecular Typing	231
Homocysteine	X	HMS	Homocysteine	64

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Homocysteine (cont.)		LN16	Homocysteine Cal Ver/ Lin	123
Homovanillic acid	X	N/NX	Urine Chemistry, Special	69
<b>HPV (cytopathology), high-risk</b>	X	<b>CHPVD</b>	Digene Specimen Transport Medium	274
	X	<b>CHPVJ</b>	Mixed Medium	274
	X	<b>CHPVK</b>	SurePath Preservative Fluid Transport Medium	274
	X	<b>CHPVM</b>	ThinPrep PreservCyt Transport Medium	274
		HPV	Digene Hybrid Capture Technology Only	195
		ISH	In Situ Hybridization	250
<b>HSV</b>	X	<b>HC2</b>	HSV by DFA	192
	X	<b>HC4</b>	HSV Culture	192
		ID1	Nucleic Acid Amp, Viruses	196
	X	<b>VR1</b>	Virology Culture	191
	X	<b>VR2</b>	Viral Antigen by DFA	191
	X	VR3	Antibody Detection-Infectious Disease Serology	200
<b>Human chorionic gonadotropin (hCG), serum</b>	X	<b>C1, C3, C3X, C4, CZ, CZ2X, CZX</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	<b>FP/FPX, FP1T</b>	Maternal Screen	87
	X	<b>HCG, IL</b>	Immunology	202
	X	<b>K/KK</b>	Ligand Assay, General	82
		LN5	Ligand Assay Cal Ver/Lin	119-120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119-120
	LN8	Reproductive Endocrinology Cal Ver/ Lin	121	
	SCO	Serum Carryover	131	
<b>Human chorionic gonadotropin (hCG), urine (qualitative)</b>	X	<b>CMP, CMP1</b>	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
	X	HCC2	Waived Combination	66
		POC1	POC hCG Competency	52
		POC3	POC Urine Dipstick Competency	52
	X	UHCG	Urine HCG	150
<b>Human epididymis protein 4</b>		HUEP	Human Epididymis Protein 4	89

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Human herpesvirus 6</b>		ID1	Nucleic Acid Amp, Viruses	196
		IDME	Meningitis/Encephalitis Panel	198
		VLS2	Viral Load	193
<b>Human herpesvirus 8</b>		ID1	Nucleic Acid Amp, Viruses	196
<b>Human immunodeficiency virus (HIV)</b>	X	HIVG, HV2	HIV Viral Load	193
		HIVG	HIV Genotyping	193
		LN39	HIV Viral Load Cal Ver/ Lin	127
<b>Human metapneumovirus</b>		ID2	Nucleic Acid Amp, Respiratory	197
	X	<b>IDR</b>	Infectious Disease, Respiratory Panel	198
<b>Human papillomavirus (cytology) high-risk</b>	X	<b>CHPVD</b>	Digene Specimen Transport Medium	274
	X	<b>CHPVJ</b>	Mixed Medium	274
	X	<b>CHPVK</b>	SurePath Preservative Fluid Transport Medium	274
	X	<b>CHPVM</b>	ThinPrep PreservCyt Transport Medium	274
		HPV	Digene Hybrid Capture Technology Only	195
		ISH	In Situ Hybridization	250
<b>Human papillomavirus (cytology) high-risk genotyping</b>		CHPVJ	Mixed Medium	274
		CHPVM	ThinPrep PreservCyt Transport Medium	274
<b>Human parechovirus</b>		IDME	Meningitis/Encephalitis Panel	198
<b>Huntington disease</b>	X	MGL2	Molecular Genetics	241
<b>Hydrocodone</b>		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
<b>Hydromorphone</b>		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Hydromorphone (cont.)		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
Hydroxyzine		T	Toxicology	96
		UT	Urine Toxicology	96
Ibuprofen		T	Toxicology	96
		UT	Urine Toxicology	96
IDH1		GLI	Glioma	253
IDH2		GLI	Glioma	253
IgA	X	IG/IGX	Immunology, General	202
		LN7	Immunology Cal Ver/Lin	121
IgA, electrophoresis	X	SPE	Protein Electrophoresis	76
IgD		S2, S4	Immunology, Special	203
IgE	X	IG/IGX	Immunology, General	202
	X	K/KK	Ligand Assay, General	82
	X	SE	Diagnostic Allergy	207
IgE allergen-specific, quantitative		SE	Diagnostic Allergy	207
IgE multi-allergen screen	X	SE	Diagnostic Allergy	207
IGF-1 (somatomedin C)	X	BGS	Bone and Growth	85
	X	Y/YY	Ligand Assay, Special	84
IgG	X	IG/IGX	Immunology, General	202
		LN7	Immunology Cal Ver/Lin	121
		S2, S4	Immunology, Special	203
IgG, electrophoresis	X	SPE	Protein Electrophoresis	76
IgG, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
IgG subclass proteins		S2, S4	Immunology, Special	203
IGHV		IGHV	Mutation Analysis	250
IgM	X	IG/IGX	Immunology, General	202
		LN7	Immunology Cal Ver/Lin	121
IgM, electrophoresis	X	SPE	Protein Electrophoresis	76
IIb/IIIa assay		PIA, PIAX	Drug-Specific Platelet Aggregation	165
IL-2		CTKN	Cytokines	206
IL-6		CTKN	Cytokines	206
IL-8		CTKN	Cytokines	206
IL-10		CTKN	Cytokines	206
IL28B		PGX1	Pharmacogenetics	243
Imipramine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
	X	ZT	TDM, Special	60
Immature granulocyte parameter		FH9, FH9P	Hematology, Auto Diff	135
Immunohistochemistry		BRAFV	BRAF V600E	267
		GHER2	Gastric HER2	269

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Immunohistochemistry (cont.)	X	HER2	HER2 by Immunohistochemistry	269
		MK	Immunohistochemistry	267
		MMR	DNA Mismatch Repair	267
		PDL1	PDL1	267
		PM1	CD117 by Immunohistochemistry	268
	X	PM2	ER, PR by Immunohistochemistry	269
		PM3	CD20 by Immunohistochemistry	268
		PM5	Immunohistochemistry TMA	268
		PM6	Anaplastic Lymphoma Kinase IHC	268
India ink		IND	India Ink	186
Infectious mononucleosis (IM)	X	IL, IM	Immunology	202
	X	IMW	Infectious Mononucleosis, Waived	203
Influenza virus		ID2	Nucleic Acid Amp, Resp	197
	X	ID3	Influenza A, Influenza B, RSV by NAA	197
	X	IDR	Infectious Disease, Respiratory Panel	198
		POC8	POC Influenza A/B Ag	52
	X	VR1	Virology Culture	191
	X	VR2	Viral Antigen Detection by DFA	191
	X	VR4	Viral Antigen Detection by EIA and Latex	192
In situ hybridization	X	ISH	In Situ Hybridization	250
	X	ISH2	In Situ Hybridization HER2	250
Instrument function		I	Instrumentation	129
Instrument linearity		I	Instrumentation	129
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		LN3	TDM Cal Ver/Lin	119
		LN5	Ligand Assay Cal Ver/Lin	119-120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119-120
		LN6	Urine Chemistry Cal Ver/Lin	120
		LN7	Immunology Cal Ver/Lin	121

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Instrument linearity (cont.)		LN8	Reproductive Endocrinology Cal Ver/Lin	121
		LN9	Hematology Cal Ver/Lin	121
		LN11	Serum Ethanol Cal Ver/Lin	122
		LN12, LN12E	C-Reactive Protein Cal Ver/Lin	122
		LN13	Blood Gas Cal Ver/Lin	122–123
		LN13C	Blood Gas Cal Ver/Lin	122–123
		LN15	Hemoglobin A <sub>1c</sub> Cal Ver/Lin	123
		LN16	Homocysteine Cal Ver/Lin	123
		LN17	Whole Blood Glucose Cal Ver/Lin	123
		LN18, LN19	Reticulocyte Cal Ver/Lin	124
		LN20	Urine Albumin Cal Ver/Lin	124
		LN21	High-Sensitivity C-Reactive Protein Cal Ver/Lin	124
		LN22	Flow Cytometry Cal Ver/Lin	124
		LN23	PSA Cal Ver/Lin	125
		LN24	Creatinine Accuracy Cal Ver/Lin	125
		LN25	Troponin I Cal Ver/Lin	125
		LN27	Troponin T Cal Ver/Lin	125
		LN30	BNP Cal Ver/Lin	125
		LN31	Immunosuppressive Drugs Cal Ver/Lin	126
		LN32	Ammonia Cal Ver/Lin	126
		LN33	Serum Myoglobin Cal Ver/Lin	126
		LN34	Tumor Markers Cal Ver/Lin	126
		LN35	Thrombophilia Cal Ver/Lin	127
		LN36	Heparin Cal Ver/Lin	127
		LN37	von Willebrand Factor Ag Cal Ver/Lin	127
		LN38	CMV viral load Cal Ver/Lin	127
		LN39	HIV Viral Load Cal Ver/Lin	127
		LN40	Vitamin D Cal Ver/Lin	127
		LN41	Procalcitonin Cal Ver/Lin	128
		LN42	D-Dimer Cal Ver/Lin	128

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Instrument linearity (cont.)		LN43	Lamellar Body Count Cal Ver/Lin	128
		LN44	Fibrinogen Cal Ver/Lin	128
		LN45	HCV Viral Load Cal Ver/Lin	127
Insulin	X	ING	Insulin, Gastrin, C-Peptide, PTH	86
Interferon (IFN) gamma		CTKN	Cytokines	206
Interleukin (IL)-1 beta		CTKN	Cytokines	206
International normalized ratio (INR)	X	CGB	Basic Coagulation	158
	X	CGL	Coagulation, Limited	158
		CGLQ	Quality Cross Check, Coagulation, Limited	49
		CGS1	Coag Special, Series 1	160–161
		CGS4	Coag Special, Series 4	160–161
		POC6	POC PT/INR, CoaguChek XS Plus	52
	X	WP3, WP4, WP6, WP9	Whole Blood Coagulation	166
		WP10	Whole Blood Coagulation	166
Ionized calcium	X	AQ, AQ2, AQ3, AQ4	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	C3, CZ, CZX	Chemistry and TDM	56–58
		POC10, POC11	POC Competency Blood Gases	53
Iron	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Isopropanol	X	AL1	Whole Blood Alcohol/Ethylene Glycol/Volatiles	101
	X	AL2	Serum Alcohol/Ethylene Glycol/Volatiles	101
JC virus		ID1T	Nucleic Acid Amp, JC and BK	196



Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Jo-1 (antihistidyl t-RNA synthetase)		RDS	Rheumatic Disease Special	207
Kaolin-activated APTT		CGE/CGEX	Coagulation, Extended	159
Kaolin-activated CT		CGE/CGEX	Coagulation, Extended	159
Kappa/Lambda	X	ISH	In Situ Hybridization	250
Kappa/Lambda ratio		IG/IGX	Immunology, General	202
		S2, S4	Immunology, Special	203
Free Kappa/Lambda ratio		SFLC	Serum Free Light Chains	208
Karyotype nomenclature	X	CY, CYBK	Cytogenetics	236
Ketamine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Ketones, serum		KET	Ketones	64
Ketones, urine	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
	X	HCC2	Waived Combination	66
		POC3	POC Urine Dipstick Competency	52
Kidney stone assessment		KSA	Kidney Stone Assessment	69
KIT		KIT	KIT/PDGFRA	252
		MTP	Multigene Tumor Panel	253
KOH prep (skin or vaginal)	X	CMMP	Clinical Microscopy, Misc	145
	X	FSM	Fungal Smear	186
KRAS	X	KRAS	Colorectal Cancer Mutation	252
	X	MTP	Multigene Tumor Panel	253
Laboratory preparedness exercise		LPX	Laboratory Preparedness Exercise	180
Lacosamide		ZE	Therapeutic Drug Monitoring, Extended	60
Lactate	X	AQ, AQ2, AQ3, AQ4	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		POC10, POC11	POC Competency Blood Gases	53
		LN13C	Blood Gas Cal Ver/Lin	122-123

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Lactate, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
Lactate dehydrogenase (LD)	X	C1, C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		SCO	Serum Carryover	131
Lactate dehydrogenase (LD), CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
Lamellar body count		LBC	Lamellar Body Count	149
		LN43	Lamellar Body Count Cal Ver/Lin	128
Lamotrigine		T	Toxicology	96
		UT	Urine Toxicology	96
		ZE	Therapeutic Drug Monitoring, Extended	60
Large unclassified cells (LUC)		FH4, FH4P	Hematology, Auto Diff	135
LD isoenzymes	X	CRTI	Cardiac Markers	62
LD1/LD2 ratio	X	CRTI	Cardiac Markers	62
LDL cholesterol	X	ABL	Accuracy-Based Lipid	110
LDL cholesterol, calculated		C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56-58
LDL cholesterol, measured	X	C1, C3, C3X, C4, CZ, CZ2X, CZX	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
LDL cholesterol, waived	X	LCW	Ltd Chem, Waived	64
Lead (blood)	X	BL	Blood Lead	102
Lead, urine		TMU	Trace Metals, Urine	103
Legionella		LBAS	Legionella Ag	176
Legionella pneumophila		IDN, IDO	Nucleic Acid Amp, Organisms	196
	X	IDR	Infectious Disease, Respiratory Panel	198
Leukemia/lymphoma immunophenotype		FL3	Flow Cytometry	209
Leukemia/lymphoma interpretation only		FL5	Flow Cytometry Interpretation Only	210

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Leukocyte esterase, urine	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
	X	HCC2	Waived Combination	66
		POC3	POC Urine Dipstick Competency	52
Leukocyte-reduced platelets		TRC	Transfusion-Related Cell Count	218
Leukocyte-reduced RBC		TRC	Transfusion-Related Cell Count	218
Leukocyte, stool, Wright-Giemsa	X	CMMP	Clinical Microscopy, Misc	145
Levetiracetam		T	Toxicology	96
		UT	Urine Toxicology	96
		ZE	Therapeutic Drug Monitoring, Extended	60
Lidocaine	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
		T	Toxicology	96
		UT	Urine Toxicology	96
Lipase	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
<b>Lipids</b>		ABL	Accuracy-Based Lipid	110
	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Lipoprotein (a)	X	ABL	Accuracy-Based Lipid	110
	X	C1, C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Lipoprotein (a) (cont.)		CZQ	Quality Cross Check, Chemistry and TDM	43
Lipoprotein-associated phospholipase		PLA	Lp-PLA <sub>2</sub>	75
Lipoprotein electrophoresis		LPE	Lipoprotein Electrophoresis	76
<i>Listeria monocytogenes</i>		IDME	Meningitis/Encephalitis Panel	198
<b>Lithium</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
Liver-kidney microsomal antibody		LKM	Liver-Kidney Microsomal Antibody	207
Lorazepam		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
Lorazepam glucuronide		DMPM	Drug Monitoring for Pain Management	106
Lupus anticoagulant (screen, conf)		CGE/CGEX	Coagulation, Extended	159
		CGS1	Coag Special, Series 1	160–161
Luteinizing hormone (LH)		ABS	Accuracy-Based Testosterone, Estradiol	111
		LN8	Reproductive Endocrinology Cal Ver/Lin	121
		X	Y/YY	Ligand Assay, Special
Lyme disease		TTD	Tick-Transmitted Disease	200
Lymphocyte immunophenotyping	X	FL, FL1	Flow Cytometry	209
Lymphoma by FISH		CYL	Fluorescence In Situ Hybridization, Lymphoma	237
Lysergic acid diethylamide (LSD)		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96
<b>Magnesium</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Magnesium (cont.)</b>		CZQ	Quality Cross Check, Chemistry and TDM	43
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Magnesium, ionized	X	AQ, AQ2	Aqueous Blood Gas	92
		AQQ, AQ2Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
		POC10, POC11	POC Competency Blood Gases	53
Magnesium, urine	X	U	Urine Chemistry, General	68
Malaria		RMAL	Rapid Malaria	188
Manganese		R	Trace Metals	78
		TMU	Trace Metals, Urine	103
		TMWB	Trace Metals, Whole Blood	103
MCAD	X	IMD2	MCAD	242
MCH		FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
		HE, HEP	Basic Hematology	134
MCHC		FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
		HE, HEP	Basic Hematology	134
MCV		FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
MCV (cont.)		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
		HE, HEP	Basic Hematology	134
MECP2 deletion/duplication analysis		RETT	RETT Syndrome Genotyping	243
MECP2 genotyping	X	RETT	RETT Syndrome Genotyping	243
MEN2	X	MGL3	Molecular Genetics	241
Meperidine		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
	UT	Urine Toxicology	96	
Mephedrone		T	Toxicology	96
		UT	Urine Toxicology	96
Meprobamate		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
	UT	Urine Toxicology	96	
Mercury, urine		TMU	Trace Metals, Urine	103
		TMWB	Trace Metals, Whole Blood	103
Metabolic disease testing		BGL	Biochemical Genetics	239
Metanephrine	X	N/NX	Urine Chemistry, Special	69
Methadone		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
	T	Toxicology	96	
	UDC	Forensic Urine Drug Testing, Confirmatory	99	
	UDS, UDS6	Urine Drug Screen	98	
	UT	Urine Toxicology	96	
Methadone metabolite (EDDP)		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
	T	Toxicology	96	

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Methadone metabolite (EDDP) (cont.)		UDC	Forensic Urine Drug Testing, Confirmatory	99	Methylenedioxy-amphetamine (MDA) (cont.)		OFD	Oral Fluid for Drugs of Abuse	100
		UDS, UDS6	Urine Drug Screen	98			T	Toxicology	96
		UT	Urine Toxicology	96			UDC	Forensic Urine Drug Testing, Confirmatory	99
Methamphetamine		DFC	Drug-Facilitated Crime	107		UT	Urine Toxicology	96	
		DMPM	Drug Monitoring for Pain Management	106	Methylenedioxyethyl-amphetamine (MDEA)		OFD	Oral Fluid for Drugs of Abuse	100
		FTC	Forensic Toxicology, Criminalistics	104			UDC	Forensic Urine Drug Testing, Confirmatory	99
		OFD	Oral Fluid for Drugs of Abuse	100	Methylenedioxymeth-amphetamine (MDMA)		DFC	Drug-Facilitated Crime	107
		T	Toxicology	96			DMPM	Drug Monitoring for Pain Management	106
		UDC	Forensic Urine Drug Testing, Confirmatory	99		FTC	Forensic Toxicology, Criminalistics	104	
		UDS, UDS6	Urine Drug Screen	98		OFD	Oral Fluid for Drugs of Abuse	100	
	UT	Urine Toxicology	96		T	Toxicology	96		
Methanol	X	AL1	Whole Blood Alcohol/ Ethylene Glycol/ Volatiles	101		UDC	Forensic Urine Drug Testing, Confirmatory	99	
	X	AL2	Serum Alcohol/Ethylene Glycol/Volatiles	101		UDS, UDS6	Urine Drug Screen	98	
Methaqualone		UDC	Forensic Urine Drug Testing, Confirmatory	99		UT	Urine Toxicology	96	
		UDS, UDS6	Urine Drug Screen	98	Methylenedioxy-pyrovalerone (MDPV)		T	Toxicology	96
Methemoglobin	X	SO	Blood Oximetry	94			UT	Urine Toxicology	96
		SOQ	Quality Cross Check, Blood Oximetry	46	Methylenetetra-hydrofolate reductase (MTHFR)	X	MGL1	Molecular Genetics	241
<b>Methicillin-resistant Staphylococcus aureus (MRSA)</b>		BCS1	Blood Culture <i>Staphylococcus aureus</i>	177		Methylphenidate		T	Toxicology
		IDN, IDO	Nucleic Acid Amp, Organisms	196			UT	Urine Toxicology	96
		MRS	Methicillin-Resistant <i>S. aureus</i>	179	Metoprolol		T	Toxicology	96
		MRS2M	MRSA Screen, Molecular, 2 Challenge	179			UT	Urine Toxicology	96
		X <b>MRS5</b>	Methicillin-Resistant <i>S. aureus</i>	179	<b>MGMT</b>		GLI	Glioma	253
		X <b>MRS5M</b>	MRSA Screen, Molecular, 5 Challenge	179	Microalbumin, urine		LN20	Urine AlbuminCal Ver/ Lin	124
		X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58		X U	Urine Chemistry	68
Methotrexate		CZQ	Quality Cross Check, Chemistry and TDM	43		X UMC	Urine Albumin (Microalbumin)/ Creatinine	151	
		DFC	Drug-Facilitated Crime	107	Microsatellite instability		MSI	Microsatellite Instability	250
Methylenedioxy-amphetamine (MDA)		DMPM	Drug Monitoring for Pain Management	106	Microtiter plate reader linearity		I	Instrumentation	129
		FTC	Forensic Toxicology, Criminalistics	104	Minimal residual disease		BALL	B-ALL Minimal Residual Disease	210
							MRD	Minimal Residual Disease, <i>BCR/ABL1</i> p210	254
						MRD1	Minimal Residual Disease, <i>BCR/ABL1</i> p190	254	

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Minimal residual disease (cont.)		MRD2	Minimal Residual Disease, <i>PML/RARA</i>	254
Mirtazapine		T	Toxicology	96
		UT	Urine Toxicology	96
Mite identification		TMO	Ticks, Mites, and Other Arthropods	189
Mitochondrial cytopathies	X	IMD3	Mitochondrial Cytopathies	242
Mitochondrial DNA deletion syndromes	X	IMD1	Mitochondrial DNA Deletion Syndromes	242
Mixing studies, PT		CGE/CGEX	Coagulation, Extended	159
Mixing studies, APTT		CGE/CGEX	Coagulation, Extended	159
		CGS1	Coag Special, Series 1	160-161
<i>MLH1</i> promoter methylation analysis		MSI	Defective DNA Mismatch Repair/ Hereditary Nonpolyposis Colorectal Cancer (HNPCC)	250
Modified acid-fast stain	X	P, P3, P4, P5	Parasitology	187
<b>Mold identification</b>	X	<b>F</b>	Mycology and Aerobic Actinomycetes	184
Molecular genetics	X	MGL1, MGL2, MGL3, MGL4, MGL5	Molecular Genetics	241
Molecular HLA typing	X	DML	HLA Molecular Typing	231
Molecular hematologic oncology		MHO, MHO1, MHO2, MHO3, MHO5	Molecular Hematologic Oncology	251, 254
Molecular typing		IDN, IDO	Nucleic Acid Amp, Organisms	196
Monitoring engraftment	X	ME	Monitoring Engraftment	232
Mononuclear cell count		CBT	Cord Blood Testing	221
		SCP	Stem Cell Processing	221
Morphine		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
M-protein (paraprotein) identification	X	SPE	Protein Electrophoresis	76

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
MPV		FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
		HE, HEP	Basic Hematology	134
<b>MRSA</b>		BCS1	Blood Culture <i>Staphylococcus aureus</i>	177
		IDN, IDO	Nucleic Acid Amp, Organisms	196
		MRS	Methicillin-Resistant <i>S. aureus</i>	179
		MRS2M	MRSA Screen, Molecular, 2 Challenge	179
	X	<b>MRS5</b>	Methicillin-Resistant <i>S. aureus</i>	179
	X	<b>MRS5M</b>	MRSA Screen, Molecular, 5 Challenge	179
Mucopolipidosis IV	X	MGL4	Molecular Genetics	241
Mucopolysaccharide (Glycosaminoglycan)	X	BGL	Biochemical Genetics	239
Multiple endocrine neoplasia type 2 (MEN2)	X	MGL3	Molecular Genetics	241
Mumps-IgG		VR3M	Virology	200
<b>Mycobacterial culture</b>	X	<b>E1</b>	Mycobacteriology, Ltd	183
<b>Mycobacterial identification</b>	X	<b>E</b>	Mycobacteriology	183
<i>Mycobacterium tuberculosis</i>		IDO	Nucleic Acid Amp, Organisms	196
<i>Mycobacterium tuberculosis</i> antibody detection		QF	<i>M. tuberculosis</i> Infection Detection	207
<i>Mycobacterium tuberculosis</i> identification and resistance detection		MTBR	Molecular MTB Identification and Resistance Detection	183
Mycophenolic acid	X	MPA	Mycophenolic Acid	59
<b>Mycoplasma pneumoniae</b>		IDN, IDO	Nucleic Acid Amp, Organisms	196
	X	<b>IDR</b>	Infectious Disease, Respiratory Panel	198
		VR3	Antibody Detection-Infectious Disease Serology	200
Myoglobin	X	CRT, CRTI	Cardiac Markers	62
		LN33	Serum Myoglobin Cal Ver/Lin	126

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Myoglobin (cont.)	X	PCARM, PCARMX	Plasma Cardiac Markers	65	Next-generation sequencing (cont.)		NGSHM	Next Generation Sequencing, Hematologic Malignancies	246
		POC12	Competency Plasma Cardiac Markers	53					
Myoglobin, urine		MYG	Myoglobin, Urine	69	Nicotine		NTA	Nicotine and Tobacco Alkaloids	102
Myotonic dystrophy	X	MGL2	Molecular Genetics	241			T	Toxicology	96
N-acetylprocainamide (NAPA)	X	CZ, CZ2X, CZX, Z	Chemistry and TDM	56–58			UT	Urine Toxicology	96
		CZQ	Quality Cross Check, Chemistry and TDM	43	Niemann-Pick type A/B	X	MGL4	Molecular Genetics	241
		LN3	TDM Cal Ver/Lin	119	NIPT		NIPT	Noninvasive Prenatal Testing	87
N-desmethyltramadol		DMPM	Drug Monitoring for Pain Management	106	Nitrite, urine	X	CMP, CMP1	Clinical Microscopy	144
		FTC	Forensic Toxicology, Criminalistics	104			CMQ	Quality Cross Check, Urinalysis	48
		T	Toxicology	96			DAI	Urine Drug Adulterant/ Integrity Testing	98
		UT	Urine Toxicology	96		X	HCC2	Waived Combination	66
								POC3	POC Urine Dipstick Competency
Naproxen		T	Toxicology	96	Nitrogen, total, urine		U	Urine Chemistry, General	68
		UT	Urine Toxicology	96			Nongynecologic cytopathology		FNA/FNA1
Nasal smears, eosinophil	X	CMMP	Clinical Microscopy, Misc	145			FNAG/FNAG1	Fine-Needle Aspiration-Glass	278
							NGC/NGC1	Nongynecologic Cytopathology Education Program	276
<i>Neisseria gonorrhoeae</i>	X	D3	GC Cultures	172	Noninvasive prenatal testing		NIPT	Noninvasive Prenatal Testing	87
		D4	Bacteriology, Limited	173	Norbuprenorphine		DMPM	Drug Monitoring for Pain Management	106
		HC6/HC6X	<i>C. trachomatis</i> /GC by Nucleic Acid Amp	194			OFD	Oral Fluid for Drugs of Abuse	100
		HC7	<i>C. trachomatis</i> /GC DNA by NAA	194			T	Toxicology	96
	X	MC1	Microbiology Combination with GC	173			UDC	Forensic Urine Drug Testing, Confirmatory	99
<i>Neisseria meningitidis</i>		IDME	Meningitis/Encephalitis Panel	198			UT	Urine Toxicology	96
Neoplastic cellularity		NEO	Neoplastic Cellularity	251	Norchlordiazepoxide		T	Toxicology	96
Neoplastic disorder by FISH		CYF	Fluorescence In Situ Hybridization	236			UT	Urine Toxicology	96
Neuropathology		NP/NP1	Neuropathology Program	271	Norclomipramine		T	Toxicology	96
Neutral fats		FCFS	Fecal Fat	75			UT	Urine Toxicology	96
Next-generation sequencing		NGS	Next-Generation Sequencing	246	Norcodeine		T	Toxicology	96
		NGSB1	NGS Bioinformatics for Illumina Platforms	247			UT	Urine Toxicology	96
		NGSB2	NGS Bioinformatics for Ion Torrent Platforms	247	Norcyclobenzaprine		T	Toxicology	96
		NGSBV	NGS Bioinformatics Somatic Validated Materials	249			UT	Urine Toxicology	96
		NGSE	NGS Undiagnosed Disorders-Exome	248	Nordiazepam		DMPM	Drug Monitoring for Pain Management	106
		NGSST	Next Generation Sequencing, Solid Tumor	246			FTC	Forensic Toxicology, Criminalistics	104

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Nordiazepam (cont.)		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
Nordoxepin		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Norepinephrine	X	N/NX	Urine Chemistry, Special	69
Norfentanyl		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Norfluoxetine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Norketamine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Normeperidine		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		T	Toxicology	96
		UT	Urine Toxicology	96
Normetanephrine	X	N/NX	Urine Chemistry Special	69
Norovirus		GIP	Gastrointestinal Panel	199
		SP1	Stool Pathogens	180
Noroxycodone		DMPM	Drug Monitoring for Pain Management	106
		T	Toxicology	96
		UT	Urine Toxicology	96
Noroxymorphone		DMPM	Drug Monitoring for Pain Management	106
Norpropoxyphene		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Norpropoxyphene (cont.)		UT	Urine Toxicology	96
Norsertaline		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Nortrimipramine		T	Toxicology	96
		UT	Urine Toxicology	96
Nortriptyline		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Norverapamil		X ZT	TDM, Special	60
		T	Toxicology	96
		UT	Urine Toxicology	96
N/RAS		MTP	Multigene Tumor Panel	253
nRBC		FH3, FH3P, FH9, FH9P, FH13, FH13P	Hematology, Auto Diff	135
NT-pro B-type natriuretic peptides	X	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	43
		LN30	BNP Cal Ver/Lin	125
N-telopeptide (NTX)		BMV6	Bone Markers and Vitamin	86
	X	BU	Bone and Mineral, Urine	85
Nucleated cells, total		CBT	Cord Blood Testing	221
		SCP	Stem Cell Processing	221
Nucleated red cells, total		ABF3	Automated Body Fluid	146
		CBT	Cord Blood Testing	221
		SCP	Stem Cell Processing	221
Nucleated red blood cell count		FH3, FH3P, FH9, FH9P, FH13, FH13P	Hematology, Auto Diff	135
		BSTS	Bacterial Strain Typing <i>Staphylococcus</i>	195
<b>Nucleic acid amplification</b>	X	HBVL, HBVL5, HCV2	Hepatitis Viral Load	193
	X	<b>HC6/HC6X</b>	<i>C. trachomatis</i> /GC by Nucleic Acid Amp	194
	X	<b>HC7</b>	<i>C. trachomatis</i> /GC DNA by NAA	194
	X	HIVG, HV2	HIV Viral Load	193
		IDN, IDO	Nucleic Acid Amp, Organisms	196

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Nucleic acid amplification (cont.)</b>		ID1, ID1T	Nucleic Acid Amp, Viruses	196	Osmolality, measured (cont.)		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		ID2	Nucleic Acid Amp, Respiratory	197				LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin
		<b>ID3</b>	Influenza A, Influenza B, RSV by NAA	197	Osmolality, urine	X	CMP, CMP1	Clinical Microscopy	144
		MRS2M	MRSA Screen, Molecular, 2 Challenge	179			CMQ	Quality Cross Check, Urinalysis	48
		X <b>MRS5M</b>	MRSA Screen, Molecular, 5 Challenge	179			LN6	Urine Chemistry Cal Ver/Lin	120
		SP, SPN, SP1	Stool Pathogens	180			POC3	POC Urine Dipstick Competency	52
		VLS, VLS2	Viral Load	193		X	U	Urine Chemistry, General	68
		VRE	Vancomycin-Resistant <i>Enterococcus</i>	182	Osmometer check		I	Instrumentation	129
	Nucleic acid testing	X	NAT	Nucleic Acid Testing	226	Osteocalcin		BGS	Bone and Growth
O-desmethyltramadol		DMPM	Drug Monitoring for Pain Management	106	Oxazepam		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104			DMPM	Drug Monitoring for Pain Management	106
		T	Toxicology	96			FTC	Forensic Toxicology, Criminalistics	104
		UT	Urine Toxicology	96			OFD	Oral Fluid for Drugs of Abuse	100
Occult blood		OCB	Occult Blood	149			T	Toxicology	96
		OCBQ	Quality Cross Check, Occult Blood	48			UDC	Forensic Urine Drug Testing, Confirmatory	99
	POC9	POC Fecal Occult Blood	52			UT	Urine Toxicology	96	
Occult blood, gastric		GOCB	Gastric Occult Blood	148	Oxcarbazepine metabolite		ZE	Therapeutic Drug Monitoring, Extended	60
Ocular micrometer check		I	Instrumentation	129	Oxidants, urine		DAI	Urine Drug Adulterant/ Integrity Testing	98
Olanzapine		T	Toxicology	96	Oxycodone		DFC	Drug-Facilitated Crime	107
		UT	Urine Toxicology	96			DMPM	Drug Monitoring for Pain Management	106
Oligoclonal bands		OLI	Oligoclonal Bands	74			FTC	Forensic Toxicology, Criminalistics	104
Opiate group		DMPM	Drug Monitoring for Pain Management	106			OFD	Oral Fluid for Drugs of Abuse	100
		OFD	Oral Fluid for Drugs of Abuse	100			T	Toxicology	96
		T	Toxicology	96	<b>Delayed until 2019</b>		TQP	Toxicology Quality Program	108
		UDS, UDS6	Urine Drug Screen	98			UT	Urine Toxicology	96
Organic acids, urine qualitative		UT	Urine Toxicology	96			UTCO	Urine Toxicology Carryover	131
		BGL	Biochemical Genetics	239	Organic acids, urine quantitative		BGL	Biochemical Genetics	239
Osmolality, measured	X	C3, C3X, CZ, CZ2X, CZX	Chemistry and TDM	56–58	Oxyhemoglobin	X	SO	Blood Oximetry	94
		CZQ	Quality Cross Check, Chemistry and TDM	43			SOQ	Quality Cross Check, Blood Oximetry	46
		IFS	Interfering Substances	130	Oxylate		KSA	Kidney Stone Risk Assessment	69
				Oxymorphone		DFC	Drug-Facilitated Crime	107	



Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Oxymorphone (cont.)		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UT	Urine Toxicology	96
p16		PM5	Immunohistochemistry TMA	268
<b>Pancreatic amylase</b>	X	<b>C1, C3, C3X, CZ, CZ2X, CZX</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
PAPP-A		FP1B	First Trimester Maternal Screening, Free Beta	87
		FP1T	First Trimester Maternal Screening, Total hCG	87
<b>Parainfluenza virus</b>		ID2	Nucleic Acid Amp, Respiratory	197
	X	<b>IDR</b>	Infectious Disease, Respiratory Panel	198
	X	<b>VR1</b>	Virology Culture	191
	X	<b>VR2</b>	Viral Antigen Detection by DFA	191
Paraprotein identification	X	SPE	Protein Electrophoresis	76
<b>Parasite identification</b>	X	<b>BP</b>	Blood Parasite	188
	X	<b>P, P3, P4, P5</b>	Parasitology	187
		PEX	Expanded Parasitology	189
Parathyroid hormone (PTH)	X	ING	Insulin, Gastrin, C-Peptide, PTH	86
		PTHQ	Quality Cross Check, PTH	45
Parentage/relationship testing	X	PARF	Parentage/Relationship	227
Paroxetine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Parvovirus B19		ID1	Nucleic Acid Amp, Viruses	196
<b>PCO2</b>	X	<b>AQ, AQ2, AQ3, AQ4</b>	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>PCO2 (cont.)</b>		POC10, POC11	POC Competency Blood Gases	53
		LN13, LN13C	Blood Gas Cal Ver/Lin	122–123
<i>PDGFRA</i>		KIT	<i>KIT/PDGFRA</i>	252
		MTP	Multigene Tumor Panel	253
PDL1		PDL1	PDL1	267
Pentobarbital		DFC	Drug-Facilitated Crime	107
		T	Toxicology	96
		UT	Urine Toxicology	96
Performance improvement program in surgical pathology		PIP/PIP1, PIPW/PIPW1	Performance Improvement Program in Surgical Pathology	256–257
Peripheral blood smear, virtual		VPBS	Virtual Peripheral Blood Smear	141
<b>pH</b>		AFL	Amniotic Fluid Leakage	146
	X	<b>AQ, AQ2, AQ3, AQ4</b>	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		GOCB	Gastric Occult Blood	148
		POC10, POC11	POC Competency Blood Gases	53
		LN13, LN13C	Blood Gas Cal Ver/Lin	122–123
pH, gastric		GOCB	Gastric Occult Blood	148
pH, urine	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
		DAI	Urine Drug Adulterant/Integrity Testing	98
	X	HCC2	Waived Combination	66
		POC3	POC Urine Dipstick Competency	52
		UDC	Forensic Urine Drug Testing, Confirmatory	99
pH meters		I	Instrumentation	129
Phencyclidine		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		OFD	Oral Fluid for Drugs of Abuse	100
		T	Toxicology	96
		UDC	Forensic Urine Drug Testing, Confirmatory	99
		UDS, UDS6	Urine Drug Screen	98
		UT	Urine Toxicology	96

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg	
Phenethylamine		FTC	Forensic Toxicology, Criminalistics	104	Phosphorus, urine		LN6	Urine Chemistry Cal Ver/Lin	120	
		T	Toxicology	96		X	U	Urine Chemistry, General	68	
		UT	Urine Toxicology	96	<i>PIK3CA</i>		MTP	Multigene Tumor Panel	253	
Pheniramine		T	Toxicology	96	Pinworm prep	X	CMMP	Clinical Microscopy, Misc	145	
		UT	Urine Toxicology	96	Pipette calibration-gravimetric		I	Instrumentation	129	
<b>Phenobarbital</b>	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58	Plasma cell neoplasms		PCNEO	Flow Cytometry, Plasma Cell Neoplasms	211	
		CZQ	Quality Cross Check, Chemistry and TDM	43	Plasma hemoglobin		PHG	Plasma Hemoglobin	76	
		DFC	Drug-Facilitated Crime	107	Plasminogen antigen		CGE/CGEX	Coagulation, Extended	159	
		FTC	Forensic Toxicology, Criminalistics	104	Plasminogen activator inhibitor		CGE/CGEX	Coagulation, Extended	159	
		LN3	TDM Cal Ver/Lin	119	Plasminogen activator inhibitor (PAI)-1		MGL1	Molecular Genetics	241	
		T	Toxicology	96	Platelet aggregation		PF	Platelet Function	164	
		UDC	Forensic Urine Drug Testing, Confirmatory	99	Platelet antibody detection	X	PS	Platelet Serology	219	
		UT	Urine Toxicology	96	Platelet calculator		TRC	Transfusion-Related Cell Count	218	
	Phentermine		FTC	Forensic Toxicology, Criminalistics	104	<b>Platelet count</b>	X	<b>FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P</b>	Hematology, Auto Diff	135
			T	Toxicology	96				FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series
		UT	Urine Toxicology	96			X	<b>FH15</b>	Centrifugal Hematology	135
Phenylephrine		T	Toxicology	96			X	<b>HE, HEP</b>	Basic Hematology	134
		UT	Urine Toxicology	96				LN9	Hematology Cal Ver/Lin	121
	<b>Phenytoin</b>	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58	Platelet count (platelet-rich plasma)	X	TRC	Transfusion-Related Cell Count	218
		CZQ	Quality Cross Check, Chemistry and TDM	43	Platelet crossmatch		PS	Platelet Serology	219	
		DFC	Drug-Facilitated Crime	107	Platelet count (estimated)		EHE1	Expanded Virtual Peripheral Blood Smear	142	
		FTC	Forensic Toxicology, Criminalistics	104			VPBS	Virtual Peripheral Blood Smear	141	
		LN3	TDM Cal Ver/Lin	119	Platelet function		PF1	Platelet Function	164	
		SCO	Serum Carryover	131	Platelet mapping		PLTM	Platelet Mapping	167	
		T	Toxicology	96	<i>Plesiomonas shigelloides</i>		GIP	Gastrointestinal Panel	199	
		UT	Urine Toxicology	96	<i>PML/RARA</i>		MH02, MH03	Molecular Hematologic Oncology	254	
Phenytoin, free	X	<b>CZ, CZ2X, CZX, Z</b>	Chemistry and TDM	56–58			MRD2	Minimal Residual Disease	254	
		CZQ	Quality Cross Check, Chemistry and TDM	43	PNA FISH- <i>Staphylococcus</i>		PNA1	PNA FISH for <i>Staphylococcus</i>	177	
		DFC	Drug-Facilitated Crime	107	PNA FISH-yeast		PNA2	PNA FISH for Yeast	177	
Phosphorus	X	<b>C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58						
		CZQ	Quality Cross Check, Chemistry and TDM	43						
		IFS	Interfering Substances	130						
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118						
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118						

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<i>Pneumocystis</i> detection		PCP1	<i>Pneumocystis jiroveci</i> , Calcofluor White Stain	186
		PCP2	<i>Pneumocystis jiroveci</i> , DFA Stain	186
		PCP4	<i>Pneumocystis jiroveci</i> , GMS Stain	186
PNH immunophenotype		PNH	Paroxysmal Nocturnal Hemoglobinuria, RBC	211
<b>PO2</b>	X	<b>AQ, AQ2, AQ3, AQ4</b>	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
		LN13, LN13C	Blood Gas Cal Ver/Lin	122-123
		POC10, POC11	POC Competency Blood Gases	53
Porphobilinogen, urine		UPBG	Porphobilinogen, Urine	70
Postanalytical DNA sequencing		SEC	DNA Sequencing Count	242
Postvasectomy sperm count	X	PV	Postvasectomy Sperm Count	154
<b>Potassium</b>	X	<b>AQ, AQ2, AQ3, AQ4</b>	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	<b>C1, C3, C3X, C4, CZ, CZX, CZ2X</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		LN13C	Blood Gas Cal Ver/Lin	122-123
		POC10, POC11	POC Competency Blood Gases	53
Potassium, urine		LN6	Urine Chemistry Cal Ver/Lin	120
	X	U	Urine Chemistry, General	68
Potassium, vitreous fluid		VF	Vitreous Fluid, Post-mortem	101

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
PRA		MX1B, MX1C, MX1E, MXB, MXC	HLA Analysis, Class I	230-231
		MX2B, MX2C, MX2E, MXB, MXC	HLA Analysis, Class II	230-231
Prader-Willi/Angelman syndrome	X	MGL1	Molecular Genetics	241
Prealbumin (transthyretin)	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	S2, S4	Immunology, Special	203
Pregabalin		DMPM	Drug Monitoring for Pain Management	106
		T	Toxicology	96
		UT	Urine Toxicology	96
		ZE	Therapeutic Drug Monitoring, Extended	60
Prekallikrein		CGE/CGEX	Coagulation, Extended	159
Predictive markers by immunohistochemistry	X	HER2	HER2 by Immunohistochemistry	269
		GHER2	Gastric HER2	269
		PM1	CD117 by Immunohistochemistry	268
	X	PM2	ER, PgR by Immunohistochemistry	269
		PM3	CD20 by Immunohistochemistry	268
		PM5	Immunohistochemistry TMA	268
<b>Primidone</b>	X	<b>CZ, CZX, CZ2X, Z</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
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	43
<b>Procainamide</b>	X	<b>CZ, CZX, CZ2X, Z</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
Procalcitonin		LN41	Procalcitonin Cal Ver/Lin	128
	X	PCT	Procalcitonin	77

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Progesterone		LN8	Reproductive Endocrinology Cal Ver/Lin	121	<b>Protein, total (cont.)</b>		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
	X	Y/YY	Ligand Assay, Special	84			LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Progesterone receptors by immunohistochemistry	X	PM2	ER, PgR by Immunohistochemistry	269			SPE	Lipoprotein and Protein Electrophoresis	76
Prolactin		LN8	Reproductive Endocrinology Cal Ver/Lin	121	Protein, CSF	X	M, OLI	CSF Chemistry and Oligoclonal Bands	74
	X	Y/YY	Ligand Assay, Special	84	Protein, urine	X	CMP, CMP1	Clinical Microscopy	144
Propoxyphene		DFC	Drug-Facilitated Crime	107			CMQ	Quality Cross Check, Urinalysis	48
		DMPM	Drug Monitoring for Pain Management	106			DSC	Dipstick Confirmatory	147
		FTC	Forensic Toxicology, Criminalistics	104		X	HCC2	Waived Combination	66
		T	Toxicology	96			LN6	Urine Chemistry Cal Ver/Lin	120
		UDC	Forensic Urine Drug Testing, Confirmatory	99			POC3	POC Urine Dipstick Competency	52
		UDS, UDS6	Urine Drug Screen	98		X	U	Urine Chemistry, General	68
		UT	Urine Toxicology	96	Prothrombin mutation	X	MGL1	Molecular Genetics	241
Propranolol		T	Toxicology	96		X	TPM	Thrombophilia Mutations	244
		UT	Urine Toxicology	96	Prothrombin fragment 1.2		CGE/CGEX	Coagulation, Extended	159
Prostate-specific antigen (PSA)	X	K, KK, K2	Ligand Assay, General	82	<b>Prothrombin time</b>	X	<b>CGB</b>	Basic Coagulation	158
		LN23	PSA Cal Ver/Lin	125		X	<b>CGL</b>	Coagulation, Limited	158
Prostate-specific antigen, complexed (cPSA)	X	K/KK	Ligand Assay, General	82			CGLQ	Quality Cross Check, Coagulation, Limited	49
Prostate-specific antigen, free (PSA, free)	X	K/KK	Ligand Assay, General	82			CGS1	Coag Special, Series 1	160–161
Prostatic acid phosphatase (PAP)	X	K/KK	Ligand Assay, General	82			CGS4	Coag Special, Series 4	160–161
Protein electrophoresis, serum, interpretation		SPE	Protein Electrophoresis	76			DBGN	Anticoagulant Monitoring, Dabigatran	161
Protein C		CGE/CGEX	Coagulation, Extended	159			FNPX	Anticoagulant Monitoring, Fondaparinux	161
		CGS2	Coag Special, Series 2	160–161			POC6	POC PT/INR, CoaguChek XS Plus	52
		LN35	Thrombophilia Cal Ver/Lin	127			RVBN	Anticoagulant Monitoring Rivaroxaban	161
Protein S		CGE/CGEX	Coagulation, Extended	159		X	<b>WP3, WP4, WP6, WP9</b>	Whole Blood Coagulation	166
		CGS2	Coag Special, Series 2	160–161	Prothrombin time, dilute		CGE/CGEX	Coagulation, Extended	159
<b>Protein, total</b>	X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58	Provider-performed microscopy		CMMP	Clinical Microscopy, Misc	145
		CZQ	Quality Cross Check, Chemistry and TDM	43	PRU test		PIA, PIAX	Drug-Specific Platelet Aggregation	165
		FLD	Body Fluid	72	Pseudocholinesterase	X	C7	Pseudocholinesterase	77
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44					
		IFS	Interfering Substances	130					

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Pseudoephedrine		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
<i>PTEN</i>		GLI	Glioma	253
Pyridinoline (PYD)		BU	Bone and Mineral, Urine	85
Q-MONITORS		QM1	Quality Management Tools	39
Q-PROBES		QP181	Quality Management Tools	25
		QP182	Quality Management Tools	26
		QP183	Quality Management Tools	27
		QP184	Quality Management Tools	28
Q-TRACKS		QT1-5	Quality Management Tools	31-32, 37
		QT7, 8, 10	Quality Management Tools	33-34
		QT15-17	Quality Management Tools	35-36
Quetiapine		T	Toxicology	96
		UT	Urine Toxicology	96
<b>Quinidine</b>	X	<b>CZ, CZX, CZ2X, Z</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
		T	Toxicology	96
		UT	Urine Toxicology	96
Quinine		T	Toxicology	96
		UT	Urine Toxicology	96
Ranitidine		T	Toxicology	96
		UT	Urine Toxicology	96
Rapamycin (sirolimus)	X	CS	Immunosuppressive Drugs	59
<b>Rapid group A strep</b>	X	<b>D</b>	Bacteriology	170
	X	<b>D4</b>	Bacteriology, Limited	173
	X	<b>D6</b>	Rapid Group A Strep	175
	X	D9	Rapid Group A Strep, Waived	175
	X	<b>MC1</b>	Microbiology Combination with GC	173
	X	<b>MC2</b>	Microbiology Combination	173
	X	<b>MC4</b>	Urine Colony Count Combination	174

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Rapid group A strep (cont.)</b>	X	<b>MC5</b>	Throat Culture/Rapid Strep	174
<b>RBC count</b>		ABF1, ABF2, ABF3	Automated Body Fluid	146
	X	<b>FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P</b>	Hematology, Auto Diff	135
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
	X	<b>HE, HEP</b>	Basic Hematology	134
		LN9	Hematology Cal Ver/Lin	121
RBC count, automated, urine (quantitative)		UAA, UAA1	Automated Urinalysis	147
RBC automated count, fluid		ABF1, ABF2, ABF3	Automated Body Fluid	146
RBC manual count, fluid	X	HFC, HFCI	Hemocytometer Fluid Count	148-149
RBC folate	X	FOL	RBC Folate	88
RBC morphology		EHE1	Expanded Virtual Peripheral Blood Smear	142
		VPBS	Virtual Peripheral Blood Smear	141
RDW		FH1-FH4, FH6, FH9, FH10, FH13, FH1P-FH4P, FH6P, FH9P, FH10P, FH13P	Hematology, Auto Diff	135
		FH3Q, FH4Q, FH6Q, FH9Q	Quality Cross Check, Automated Hematology Series	47
		HE, HEP	Basic Hematology	134
Red blood cell antigen detection		J, J1	Transfusion Medicine	214
Red blood cell antigen genotyping		RAG	Red Blood Cell Antigen Genotyping	216
Red blood cell antigen typing		RBCAT	Red Blood Cell Antigen Typing	217
Reducing substance, urine	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
	X	HCC2	Waived Combination	66
		POC3	POC Urine Dipstick Competency	52
Refractometer check		I	Instrumentation	129

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Renin	X	RAP	Renin and Aldosterone	89
Reptilase time		CGE/CGEX	Coagulation, Extended	159
<b>Respiratory syncytial virus (RSV)</b>		ID2	Nucleic Acid Amp, Respiratory	197
	X	ID3	Influenza A, Influenza B, RSV by NAA	197
	X	IDR	Infectious Disease, Respiratory Panel	198
	X	VR1	Virology Culture	191
	X	VR2	Viral Antigen Detection by DFA	191
	X	VR4	Virology Antigen Detection by EIA and Latex	192
Reticulocyte count, absolute	X	RT, RT2, RT3, RT4	Reticulocyte	139
		RTQ, RT2Q, RT3Q, RT4Q	Quality Cross Check, Reticulocyte	47
Reticulocyte count, percent		LN18, LN19	Reticulocyte Cal Ver/Lin	124
	X	RT, RT2, RT3, RT4	Reticulocyte	139
		RTQ, RT2Q, RT3Q, RT4Q	Quality Cross Check, Reticulocyte	47
RETT syndrome	X	RETT	RETT Syndrome Genotyping	243
RhD	X	MGL2	Molecular Genetics	241
<b>RhD typing</b>	X	J, J1	Transfusion Medicine	214
	X	JAT	Transfusion Medicine, Automated	215
		JATE1	Transfusion Medicine, Automated, Educational	215
		TMCA	Transfusion Medicine, Competency Assessment	219
<b>Rheumatoid factor</b>	X	IL, RF/RFX	Immunology	202
<b>Rhinovirus</b>		ID2	Nucleic Acid Amp, Respiratory	197
	X	IDR	Infectious Disease, Respiratory Panel	198
RNA sequencing		RNA	RNA Sequencing	252
<b>Rotavirus</b>		GIP	Gastrointestinal Panel	199
		SP, SPN	Stool Pathogens	180
	X	VR4	Viral Antigen Detection by EIA and Latex	192
<b>RSV</b>		ID2	Nucleic Acid Amp, Respiratory	197
	X	ID3	Influenza A, Influenza B, RSV by NAA	197
	X	IDR	Infectious Disease, Respiratory Panel	198
	X	VR1	Virology Culture	191

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>RSV (cont.)</b>	X	VR2	Viral Antigen Detection by DFA	191
	X	VR4	Viral Antigen Detection by EIA and Latex	192
<b>Rubella antibody, IgG</b>	X	IL, RUB/RUBX	Immunology	202
Rubeola antibody (English measles)	X	VR3	Antibody Detection-Infectious Disease Serology	200
Rufinamide		ZE	Therapeutic Drug Monitoring, Extended	60
Rupture of fetal membranes		ROM1	Rupture of Fetal Membranes	150
Russell's viper venom time, dilute		CGE/CGEX	Coagulation, Extended	159
Salicylate	X	CZ, CZX, CZ2X, Z	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FTC	Forensic Toxicology, Criminalistics	104
		LN3	TDM Cal Ver/Lin	119
	X	SDS	Serum Drug Screen	101
		T	Toxicology	96
		UT	Urine Toxicology	96
<i>Salmonella</i>		GIP	Gastrointestinal Panel	199
Sapovirus (I, II, IV, V)		GIP	Gastrointestinal Panel	199
Sarcoma by FISH		CYK	Fluorescence In Situ Hybridization	237
Sarcoma translocation		SARC	Sarcoma Translocation	251
Scl-70 (anti-DNA topoisomerase)		RDS	Rheumatic Disease Special	207
Scopolamine		DFC	Drug-Facilitated Crime	107
Secobarbital		DFC	Drug-Facilitated Crime	107
		FTC	Forensic Toxicology, Criminalistics	104
		UDC	Forensic Urine Drug Testing, Confirmatory	99
Selenium	X	R	Trace Metals	78
Selenium, urine		TMU	Trace Metals, Urine	103
Selenium, whole blood		TMWB	Trace Metals, Whole Blood	103
Semen analysis	X	ASA, SC, SV, PV	Semen Analysis	154
		SC1, SM	Semen Analysis	154
		SMCD, SM1CD, SM2CD	Semen Analysis, CD-ROM	154
<i>SERPINA1</i> genotyping	X	AAT	Alpah-1 Antitrypsin Genotyping	239
Sertraline		DFC	Drug-Facilitated Crime	107

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Sertraline (cont.)		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Serum free light chains		SFLC	Serum Free Light Chains	208
Sex hormone-binding globulin (SHBG)		ABS	Testosterone and Estradiol Accuracy	111
	X	DY	Ligand Assay, Special	84
Shiga toxin		SP	Stool Pathogens-Rapid and Molecular	180
		ST	Shiga Toxin	181
Shiga-like toxin producing <i>E. coli</i> (STEC)		GIP	Gastrointestinal Panel	199
<i>Shigella</i>		GIP	Gastrointestinal Panel	199
Sickle cell screen, qualitative	X	HG	Hemoglobinopathy	139
	X	SCS	Sickle Cell Screen	140
Sirolimus (Rapamycin)	X	CS	Immunosuppressive Drugs	59
<i>SLC01B1</i>		PGX	Pharmacogenetics	243
<b>Sodium</b>	X	<b>AQ, AQ2, AQ3, AQ4</b>	Aqueous Blood Gas	92
		AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	<b>C1, C3, C3X, C4, CZ, CZ2X, CZX</b>	Chemistry and TDM	56-58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		LN13C	Blood Gas Cal Ver/Lin	122-123
		POC10, POC11	POC Competency Blood Gases	53
Sodium, urine		LN6	Urine Chemistry Cal Ver/Lin	120
	X	U	Urine Chemistry, General	68
Sodium, vitreous fluid		VF	Vitreous Fluid, Post-mortem	101
Soluble transferrin receptor		STFR	Soluble Transferrin Receptor	80
Somatomedin C (IGF-1)	X	Y, YY	Ligand Assay, Special	84

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
SOX10		PM5	Immunohistochemistry TMA	268
Specific gravity	X	CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
		DAI	Urine Drug Adulterant/ Integrity Testing	98
	X	HCC2	Waived Combination	66
		POC3	POC Urine Dipstick Competency	52
		UDC	Forensic Urine Drug Testing, Confirmatory	99
Spectrophotometer linearity		I	Instrumentation	129
Sperm count	X	SMCD	Semen Analysis, CD-ROM	154
Sperm count, automated		SC1	Semen Analysis	154
Sperm count, manual	X	SC	Semen Analysis	154
	X	PV	Postvasectomy Sperm Count	154
Sperm morphology		SM	Semen Analysis	154
		SM1CD	Semen Analysis, CD-ROM	154
Sperm motility		SMCD	Semen Analysis, CD-ROM	154
Sperm viability		SM2CD	Semen Analysis, CD-ROM	154
	X	SV	Semen Analysis	154
<b>Spinal fluid meningitis panel</b>	X	D	Bacteriology	170
Spinal muscular atrophy	X	MGL2	Molecular Genetics	241
Spinocerebellar ataxia	X	MGL2	Molecular Genetics	241
Split fats		FCFS	Fecal Fat	75
<i>Staphylococcus aureus</i> -blood culture		BCS1	Blood Culture <i>Staphylococcus aureus</i>	177
STEC (Shiga-like toxin producing <i>E. coli</i> )		GIP	Gastrointestinal Panel	199
Strep screen		POC4	POC/Waived Strep Screen Competency	52
<b><i>Streptococcus agalactiae</i></b>	X	<b>D8</b>	Group B Strep	176
		IDME	Meningitis/Encephalitis Panel	198
<i>Streptococcus pneumoniae</i>		IDME	Meningitis/Encephalitis Panel	198
		SBAS	<i>S. pneumoniae</i> Ag Detection	176
<b><i>Streptococcus pyogenes</i></b>	X	<b>D</b>	Bacteriology	170
	X	<b>D1, D7</b>	Throat, Urine Cultures	172
	X	<b>D4</b>	Bacteriology, Ltd	173
	X	<b>D6</b>	Rapid Group A Strep	175

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Streptococcus pyogenes (cont.)</b>	X	D9	Rapid Group A Strep, Waived	175	<b>T4, free (thyroxine, free)</b>		ABTH	Harmonized Thyroid	112
	X	MC1	Microbiology Combination with GC	173		X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
	X	MC2	Microbiology Combination	173			CZQ	Quality Cross Check, Chemistry and TDM	43
	X	MC4	Urine Colony Count Combination	174		X	K/KK	Ligand Assay, General	82
	X	MC5	Throat Culture/Rapid Strep	174		<b>T4, total (thyroxine, total)</b>		ABTH	Harmonized Thyroid
Strychnine		T	Toxicology	96		X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		UT	Urine Toxicology	96			CZQ	Quality Cross Check, Chemistry and TDM	43
Sulfate		KSA	Kidney Stone Risk Assessment	69		X	K/KK	Ligand Assay, General	82
Sulfosalicylic acid (SSA)		DSC	Dipstick Confirmatory	147			LN5	Ligand Assay Cal Ver/Lin	119–120
Surgical pathology		DPATH/DPATH1	Online Digital Slide Program	259			LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120
		PIP/PIP1, PIPW/PIPW1	Performance Improvement Program in Surgical Pathology	256–257	Tacrolimus	X	CS	Immunosuppressive Drugs	59
		PCSP, PCSP1	Practicum in Cancer Surgical Pathology	262			LN31	Immunosuppressive Drugs Cal Ver/Lin	126
		VBP/VBP1	Online Virtual Biopsies Program	258	Tay Sachs	X	MGL4	Molecular Genetics	241
Synthetic cannabinoid/designer drugs		SCDD	Synthetic Cannabinoid/Designer Drugs	105	tCO <sub>2</sub>		AQ, AQ2, AQ3, AQ4	Aqueous Blood Gas	92
<b>Syphilis</b>	X	G	Syphilis Serology	208			AQQ, AQ2Q, AQ3Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
T3, free (triiodothyronine)		ABTH	Harmonized Thyroid	112			POC10, POC11	POC Competency Blood Gases	53
	X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58	Temazepam		DFC	Drug-Facilitated Crime	107
		CZQ	Quality Cross Check, Chemistry and TDM	43			DMPM	Drug Monitoring for Pain Management	106
	X	K/KK	Ligand Assay, General	82			FTC	Forensic Toxicology, Criminalistics	104
<b>T3, total (triiodothyronine)</b>		ABTH	Harmonized Thyroid	112			OFD	Oral Fluid for Drugs of Abuse	100
	X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58			T	Toxicology	96
		CZQ	Quality Cross Check, Chemistry and TDM	43			UDC	Forensic Urine Drug Testing, Confirmatory	99
	X	K/KK	Ligand Assay, General	82			UT	Urine Toxicology	96
		LN5	Ligand Assay Cal Ver/Lin	119–120	Teriflunomide		ZE	Therapeutic Drug Monitoring, Extended	60
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120	Testosterone		ABS	Accuracy-Based Testosterone and Estradiol	111
<b>T3, uptake and related tests</b>	X	C1, C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58			LN8	Reproductive Endocrinology Cal Ver/Lin	121
		CZQ	Quality Cross Check, Chemistry and TDM	43		X	Y/YY	Ligand Assay, Special	84
	X	K/KK	Ligand Assay, General	82	Testosterone, bioavailable		ABS	Testosterone and Estradiol Accuracy	111



Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Testosterone, bioavailable (cont.)		DY	Ligand Assay, Special	84
Testosterone, free		ABS	Testosterone and Estradiol Accuracy	111
	X	DY	Ligand Assay, Special	84
Tetrahydrozoline		DFC	Drug-Facilitated Crime	107
Thallium, urine		TMU	Trace Metals, Urine	103
Thallium, whole blood		TMWB	Trace Metals, Whole Blood	103
<b>Theophylline</b>	X	<b>CZ, CZX, CZ2X, Z</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
<b>Throat culture</b>	X	<b>D1, D7</b>	Throat, Urine Cultures	172
	X	<b>D4</b>	Bacteriology, Ltd	173
	X	<b>MC1</b>	Microbiology Combination with GC	173
	X	<b>MC2</b>	Microbiology Combination	173
	X	<b>MC4</b>	Urine Colony Count Combination	174
	X	<b>MC5</b>	Throat Culture/Rapid Strep	174
Thrombin time		CGE/CGEX	Coagulation, Extended	159
		CGS4	Coag Special, Series 4	160–161
		DBGN	Dabigatran	161
Thrombin-antithrombin		CGE/CGEX	Coagulation, Extended	159
Thromboelastogram		TEG	Viscoelastometry	164
Thrombophilia mutations	X	TPM	Thrombophilia Mutations	244
Thyroglobulin	X	TM/TMX	Tumor Markers	89
<b>Thyroid-stimulating hormone (TSH)</b>		ABS	Accuracy-Based Testosterone and Estradiol	111
		ABTH	Harmonized Thyroid	112
	X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	<b>K/KK</b>	Ligand Assay, General	82
		LN5	Ligand Assay Cal Ver/Lin	119–120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120
<b>Thyroxine, free</b>		ABTH	Harmonized Thyroid	112
	X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Thyroxine, free (cont.)</b>		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	<b>K/KK</b>	Ligand Assay, General	82
<b>Thyroxine, total</b>		ABTH	Harmonized Thyroid	112
	X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
	X	<b>K/KK</b>	Ligand Assay, General	82
		LN5	Ligand Assay Cal Ver/Lin	119–120
		LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120
Tick identification		TMO	Ticks, Mites, and Other Arthropods	189
<b>Tissue parasite identification</b>	X	<b>BP</b>	Blood Parasite	188
	X	<b>P</b>	Parasitology	187
Tissue plasminogen activator		CGE/CGEX	Coagulation, Extended	159
<b>Tobramycin</b>	X	<b>CZ, CZX, CZ2X, Z</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN3	TDM Cal Ver/Lin	119
Topiramate		T	Toxicology	96
		UT	Urine Toxicology	96
		ZE	Therapeutic Drug Monitoring, Extended	60
Total bile acids		TBLA	Total Bile Acid	78
<b>Total bilirubin</b>	X	<b>C1, C3, C3X, CZ, CZX, C4, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
	X	<b>NB, NB2</b>	Neonatal Bilirubin	65
Total bilirubin, urine	X	<b>CMP, CMP1</b>	Clinical Microscopy	144
	X	<b>HCC2</b>	Waived Combination	66
		<b>DSC</b>	Dipstick Confirmatory	147
Total free fatty acids		FCFS	Fecal Fat	75
<b>Total hCG</b>	X	<b>FP1T</b>	First Trimester Maternal Screening, Total hCG	87

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Total hemolytic complement		CH50	Total Hemolytic Complement	208
Total iron binding capacity, measured and % saturation	X	C3, C3X, CZ CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
Total nitrogen, urine		U	Urine Chemistry, General	68
Total nucleated cells		CBT	Cord Blood Testing	221
		SCP	Stem Cell Processing	221
Total nucleated cells manual differential count (body fluid)		HFC/HFCI	Hemocytometer Fluid Count	148–149
		VBF	Virtual Body Fluid	146
Total nucleated red cells		CBT	Cord Blood Testing	221
		SCP	Stem Cell Processing	221
<b>Total protein</b>	X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD	Body Fluid	72
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
		SPE	Protein Electrophoresis	76
Total protein, CSF	X	M, OLI	CSF Chemistry and Oligoelonal Bands	74
Total protein, urine		CMP, CMP1	Clinical Microscopy	144
		CMQ	Quality Cross Check, Urinalysis	48
	X	HCC2	Waived Combination	66
		LN6	Urine Chemistry Cal Ver/Lin	120
	X	U	Urine Chemistry, General	68
Total tricyclics	X	SDS	Serum Drug Screen	101
	X	ZT	TDM, Special	60
Touch imprint/crush prep		TICP, TICP1	Touch Imprint/Crush Prep	275
Toxicology, serum, qualitative	X	SDS	Serum Drug Screen	101
	X	T	Toxicology	96
Toxicology, urine, qualitative	X	DMPM	Drug Monitoring for Pain Management	106

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Toxicology, urine, qualitative (cont.)	X	T	Toxicology	96
<b>Delayed until 2019</b>		TQP	Toxicology Quality Program	108
	X	UDS, UDS6	Urine Drug Screen	98
	X	UT	Urine Toxicology	96
Toxicology, urine, qualitative/quantitative	X	DMPM	Drug Monitoring for Pain Management	106
	X	UDC	Forensic Urine Drug Testing, Confirmatory	99
<i>Toxoplasma gondii</i>	X	VR3	Antibody Detection-Infectious Disease Serology	200
<i>TPMT</i>		PGX3	Pharmacogenetics	243
Tramadol		DFC	Drug-Facilitated Crime	107
		DMPM	Drug Monitoring for Pain Management	106
		FTC	Forensic Toxicology, Criminalistics	104
		T	Toxicology	96
		UT	Urine Toxicology	96
Transferrin	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		LN7	Immunology Cal Ver/Lin	121
	X	S2, S4	Immunology, Special	203
<b>Transfusion medicine</b>		ETME1	Expanded Transfusion Medicine Exercises	223
		EXM, EXM2	Electronic Crossmatch	215–216
	X	<b>J, J1</b>	Transfusion Medicine	214
	X	<b>JAT</b>	Transfusion Medicine, Automated	215
		JATE1	Transfusion Medicine, Automated	215
		JE1	Transfusion Medicine, Education	214
		TMCA	Transfusion Medicine, Competency Assessment	219
		TMCAD	Transfusion Medicine, Competency Assessment	219
		TMCAE	Transfusion Medicine, Competency Assessment	220
		TMCAF	Transfusion Medicine, Competency Assessment	220
	X	TRC	Transfusion-Related Cell Count	218

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	
Trazodone		FTC	Forensic Toxicology, Criminalistics	104	
		T	Toxicology	96	
		UT	Urine Toxicology	96	
<b>Treponema pallidum</b>	X	G	Syphilis Serology	208	
<i>Trichomonas vaginalis</i>		TVAG	<i>Trichomonas vaginalis</i> , Molecular	189	
	X	VS, VS1	Vaginitis Screen	181	
Tricyclic group		T	Toxicology	96	
		UDS, UDS6	Urine Drug Screen	98	
		UT	Urine Toxicology	96	
Tricyclics, total	X	SDS	Serum Drug Screen	101	
	X	ZT	TDM, Special	60	
<b>Triglycerides</b>		ABL	Accuracy-Based Lipid	110	
	X	<b>C1, C3, C3X, C4, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58	
		CZQ	Quality Cross Check, Chemistry and TDM	43	
		FCFS	Fecal Fat	75	
		FLD	Body Fluid	72	
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44	
	X	LCW	Ltd Chem, Waived	64	
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118	
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118	
	<b>Triiodothyronine (T3)</b>		ABTH	Harmonized Thyroid	112
		X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43	
X		K/KK	Ligand Assay, General	82	
		LN5	Ligand Assay Cal Ver/Lin	119–120	
	LN5S	Ligand Assay, Siemens Cal Ver/Lin	119–120		
<b>Triiodothyronine (T3), free</b>		ABTH	Harmonized Thyroid	112	
	X	<b>C1, C3, C3X, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58	
		CZQ	Quality Cross Check, Chemistry and TDM	43	
	X	K/KK	Ligand Assay, General	82	
Trimipramine		T	Toxicology	96	
		UT	Urine Toxicology	96	

Analyte/Procedure	LAP ENR	Program Code	Description	Pg
Troponin I, plasma	X	PCARM, PCARMX	Plasma Cardiac Markers	65
		POC12	Competency Plasma Cardiac Markers	53
Troponin I, serum	X	CRT, CRTI	Cardiac Markers	62
		LN25	Troponin I Cal Ver/Lin	125
Troponin T, serum		LN27	Troponin T Cal Ver/Lin	125
		TNT	Troponin T	62
	X	TNT5	Troponin T, 5 Challenge	62
Tumor necrosis factor (TNF)-alpha		CTKN	Cytokines	206
<i>UGT1A1</i>		PGX3	Pharmacogenetics	243
Unsaturated iron binding capacity, measured	X	C3, C3X, CZ, CZX, CZ2X	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
<b>Urea nitrogen</b>	X	<b>AQ2, AQ4</b>	Aqueous Blood Gas	92
		AQ2Q, AQ4Q	Quality Cross Check, Critical Care Aqueous Blood Gas Series	46
	X	<b>C1, C3, C3X, C4, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLDQ	Quality Cross Check, Body Fluid Chemistry	44
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118
		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118
Urea nitrogen, urine		LN6	Urine Chemistry Cal Ver/Lin	120
	X	U	Urine Chemistry, General	68
Urea nitrogen, vitreous fluid		VF	Vitreous Fluid, Post-mortem	101
Urease	X	RUR	Rapid Urease	180
<b>Uric acid</b>	X	<b>C1, C3, C3X, C4, CZ, CZX, CZ2X</b>	Chemistry and TDM	56–58
		CZQ	Quality Cross Check, Chemistry and TDM	43
		FLD2	Body Fluid Chemistry 2	73
		IFS	Interfering Substances	130
		LN2	Chemistry, Lipid, Enzyme Cal Ver/Lin	118

Analyte/Procedure	LAP ENR	Program Code	Description	Pg	Analyte/Procedure	LAP ENR	Program Code	Description	Pg
<b>Uric acid (cont.)</b>		LN2BV	Chemistry, Lipid, Enzyme all Beckman except AU, Vitros Cal Ver/Lin	118	<b>Urobilinogen (cont.)</b>		CMQ	Quality Cross Check, Urinalysis	48
Uric acid, urine		LN6	Urine Chemistry Cal Ver/Lin	120		X	HCC2	Waived Combination	66
	X	U	Urine Chemistry, General	68			POC3	POC Urine Dipstick Competency	52
Urine albumin		LN20	Urine albumin Cal Ver/Lin	124	Uroporphyrin	X	N/NX	Urine Chemistry, Special	69
	X	U	Urine Chemistry, General	68	Urothelial carcinoma by FISH, hybridization and interpretation on-site	X	CY1	Fluorescence In Situ Hybridization, Urothelial Carcinoma	236
	X	UMC	Urine Albumin Creatinine	151	Vaginal wet preparations	X	CMMP	Clinical Microscopy, Misc	145
Urine albumin: creatinine ratio		ABU	Accuracy-Based Urine ratio	111	<b>Vaginitis screen</b>		BV	Bacterial Vaginosis	181
		U	Urine Chemistry, General	68		X	VS	BD Affirm VP III Antigen Detection	181
		UMC	Urine Albumin Creatinine	151		X	VS1	Genzyme OSOM <i>Trichomonas</i>	181
Urine colony count		MC3	Urine Colony Count	174			VS2	Vaginitis Screen, Virtual Gram Stain	182
		MC4	Urine Colony Count Combination	174	<b>Valproic acid</b>	X	<b>CZ, CZX, CZ2X, Z</b>	Chemistry and TDM	56–58
Urine crystals identification		URC	Crystals	147			CZQ	Quality Cross Check, Chemistry and TDM	43
Urine crystals, semiquantitative		UAA	Automated Urinalysis	147			DFC	Drug-Facilitated Crime	107
<b>Urine culture</b>	X	<b>D2, D7</b>	Throat, Urine Cultures	172			LN3	TDM Cal Ver/Lin	119
	X	<b>D4</b>	Bacteriology, Limited	173			T	Toxicology	96
	X	<b>MC1</b>	Microbiology Combination with GC	173			UT	Urine Toxicology	96
	X	<b>MC2</b>	Microbiology Combination	173	Valproic acid, free	X	CZ, CZX, CZ2X, Z	Chemistry and TDM	56–58
		MC3	Urine Colony Count	174			CZQ	Quality Cross Check, Chemistry and TDM	43
	X	<b>MC4</b>	Urine Colony Count Combination	174	Vancomycin	X	CZ, CZX, CZ2X, Z	Chemistry and TDM	56–58
	X	<b>MC5</b>	Throat Culture/Rapid Strep	174			CZQ	Quality Cross Check, Chemistry and TDM	43
Urine dipstick	X	CMP, CMP1	Clinical Microscopy	144			LN3	TDM Cal Ver/Lin	119
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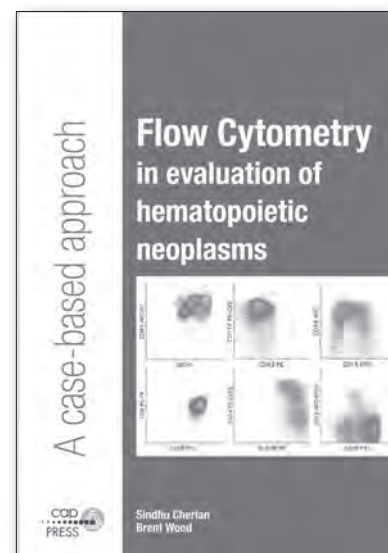
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