Hematology

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

Basic Hematology HE, HEK, HEP

Analyte/Procedure	HE	HEK	HEP	Challenges per Shipment
Blood cell identification				
Photomicrographs (35mm slide)		▮		**10**
Color photographs			▮	**10**
Supplemental CD-ROM* ***NEW***			▮	**1 CD with 10 digital images**
Hematocrit	▮	▮	▮	**5**
Hemoglobin	▮	▮	▮	**5**
Platelet count	▮	▮	▮	**5**
Red blood cell count	▮	▮	▮	**5**
White blood cell count	▮	▮	▮	**5**

Note: For HEP only the color photographs are to be used for reporting challenges. The CD-ROM has been provided to allow your laboratory to project and view the images in greater detail.

Product Information

Surveys HE, HEK, and HEP are designed for use with all hematology analyzers. For instruments that provide an automated differential, refer to Surveys FH1-FH10, FH1K-FH10K, and FH1P-FH10P on page 103. Participants ordering Surveys HE, HEK, or HEP may report two sets of data, but only the first set of results will be used to meet federal regulatory requirements. The first five photomicrographs/color photographs will be evaluated to meet regulatory requirements, and the additional five are designed as an educational ungraded component.

The types of cells that participants will be asked to identify in the color photographs and photomicrographs will be morphological examples of both normal and immature cell lines. If your institution does not identify abnormal or immature cells, the CAP recommends that you enroll in the XHP module of the EXCEL program. Please contact a CAP Customer Contact Center Representative at 800-323-4040 option 1 for additional information.

Each shipment of Survey HE will contain five whole blood specimens.
Each shipment of Survey HEK will contain five whole blood specimens and ten photomicrographs.
Each shipment of Survey HEP will contain five whole blood specimens, ten color photographs, and one supplemental CD-ROM containing digital images of the ten blood cell identification challenges.

An education activity is planned that includes reading material found in the Participant Summary/Final Critique and online learning assessment questions. All laboratory staff can participate individually and earn free CME/CE credit without leaving the laboratory.

Product Fulfillment Group HE

Hematology Automated Differentials FH Series

Analyte/Procedure	FH1–FH10	FH1K–FH10K	FH1P–FH10P	Challenges per Shipment
Blood cell identification				
Photomicrographs (35mm slide)		▮		10
Color photographs			▮	10
Supplemental CD-ROM* ***NEW***			▮	**1 CD with 10 digital images**
Hematocrit	▮	▮	▮	5
Hemoglobin	▮	▮	▮	5
Immature granulocyte parameter	▮	▮	▮	5 (FH9 only)
Nucleated red blood cell count (nRBC)	▮	▮	▮	5 (FH3 and FH9)
Platelet count	▮	▮	▮	5
Red blood cell count	▮	▮	▮	5
White blood cell count	▮	▮	▮	5
WBC differential	▮	▮	▮	5

**Note: FH1P-FH10P only the color photographs are to be used for reporting challenges. The CD-ROM has been provided to allow your laboratory to project and view the images in greater detail.*

Product Information

The FH Hematology Series is designed for use with automated differential hematology analyzers and consists of instrument-specific modules. Participants ordering an FH Hematology Series Survey may report two sets of data, but only the first set of results will be used to meet federal regulatory requirements. The first five photomicrographs/ color photographs will be evaluated to meet regulatory requirements, and the additional five are designed as an educational ungraded component. *Note: To receive 35mm photomicrographs for blood cell identification, please order the appropriate instrument-specific module FH1K-FH10K. To receive color photographs for blood cell identification, please order the appropriate instrument-specific module FH1P-FH10P.*

The types of cells that participants will be asked to identify in the color photographs and photomicrographs will be morphological examples of both normal and immature cell lines. If your institution does not identify abnormal or immature cells, the College recommends that you enroll in the XHP module of the EXCEL program. Please contact a CAP Customer Contact Center Representative at 800-323-4040 option 1 for additional information.

Each shipment of Surveys FH1-FH10 will contain five whole blood specimens with pierceable caps.
Each shipment of Surveys FH1K-FH10K will contain five whole blood specimens with pierceable caps and ten photomicrographs.
Each shipment of Surveys FH1P-FH10P will contain five whole blood specimens with pierceable caps, ten color photographs, and one supplemental CD-ROM containing digital images of the ten blood cell identification challenges.

An education activity is planned that includes reading material found in the Participant Summary/Final Critique and online learning assessment questions. All laboratory staff can participate individually and earn free CME/CE credit without leaving the laboratory.

For your shipping and analysis convenience, the instrument-specific modules are contained in their own unique Product Fulfillment Group.

Hematology Automated Differentials, continued

Instrument	FH1, FH1K, FH1P	FH2, FH2K, FH2P	FH3, FH3K, FH3P	FH4, FH4K, FH4P	FH6, FH6K, FH6P	FH8, FH8K, FH8P	FH9, FH9K, FH9P	FH10, FH10K, FH10P
Horiba ABX 9000+, 9018+, 9020+, 9118+, 9120+, Spirit	▮							
Sysmex K-series, KCP-1, KX-21/21N, poc H-100i	▮							
Abbott Cell-Dyn 1200, 1400, 1500, 1600, 1700, 1800, 2000	▮							
Horiba ABX Argos, Helios, Micros, Minos		▮						
Bayer ADVIA 60		▮						
Coulter AcT, JT, MD, Onyx, S/S-plus series, ST, STKR, T-series		▮						
Danam DC-16CP, DC-18, I-1600, I-1800, EXCELL 10/16/18		▮						
Abbott Cell-Dyn 3000, 3200, 3500, 3700, 4000, Sapphire, Ruby			▮					
Bayer ADVIA 70			▮					
Danam EXCELL 22			▮					
Bayer ADVIA 120, 2120, H-series				▮				
Coulter Gen-S, HmX, LH500, LH700 series, MaxM, STKS, VCS					▮			
Sysmex SE-9000, 9500, 9500R, SF-3000						▮		
Sysmex XE-2100, XE-2100D, XE-2100L, XT-1800i, XT-2000i, XS-8000, XS-1000i, XS-1000iAL							▮	
ABX Pentra 60, 80, 120								▮
Coulter AcT 5 diff								▮
Pierceable caps	▮	▮	▮	▮	▮	▮	▮	▮

The CAP Surveys Hematology, Clinical Microscopy, and Body Fluids Glossary — Complimentary with Enrollment

The CAP Surveys Hematology, Clinical Microscopy, and Body Fluids Glossary "provides a wealth of information" for every hematology laboratory to help assure accurate patient results. This outstanding resource, provided automatically to laboratories enrolled in the HE or FH Series Hematology Surveys or Clinical Microscopy Survey CM, and also available online at www.cap.org, provides practical definitions for:

- Blood identification
- Skin and hair KOH preparations
- Vaginal wet preparations
- Arthropods
- Nasal smears for eosinophils
- Body fluids
- Pinworm preparations
- Urine sediment
- Stool examinations
- Fecal leukocytes

This resource is comprehensive, concise, organized for ease of use, and available at the bench for immediate reference.

Blood Cell Identification BCK, BCP

Analyte/Procedure	BCK	BCP	Challenges per Shipment
Blood cell identification			
Photomicrographs (35mm slides)	▮		10
Color photographs		▮	10
Supplemental CD-ROM* ***NEW***		▮	**1 CD with 10 digital images**

**Note: For BCP only the color photographs are to be used for reporting challenges. The CD-ROM has been provided to allow your laboratory to project and view the images in greater detail.*

Product Information

For additional sets of photomicrographs (35mm slides) or to purchase only photomicrographs without liquid hematology specimens, please order Survey BCK (photomicrographs). For additional sets of color photographs or to purchase only color photographs without liquid hematology specimens, please order Survey BCP (color photographs). Each shipment of Survey BCK contains ten photomicrographs. Each shipment of Survey BCP contains ten color photographs and one supplemental CD-ROM containing digital images of the ten blood cell identification changes.

The types of cells that participants will be asked to identify in the color photographs (BCP) and photomicrographs (BCK) will be morphological examples of both normal and immature cell lines. If your institution does not identify abnormal or immature cells, the College recommends that you enroll in the XHP module of the EXCEL program. Please contact a CAP Customer Contact Center Representative at 800-323-4040 option 1 for additional information.

Reticulocyte RT, RT2, RT3, RT4

Instrument/Method	RT	RT2	RT3	RT4	Challenges per Shipment
Abbott Cell-Dyn 3200, 3500, 3700		▮			3
All other manual & automated methods	▮				3
Coulter STKS, VCS, MaxM, GenS, HmX, LH500, LH700 series			▮		3
Sysmex XE-2100, XE2100D, XE2100L, XT-1800i, and XT2000i				▮	3
Pierceable caps			▮		3

Product Information

Each shipment will include three 1.0-mL liquid stabilized red blood cell specimens.

Erythrocyte Sedimentation Rate ESR, ESR1

Procedure	ESR	ESR1	Challenges per Shipment
All methods except the Sedimat® 15	▮		3
Sedimat® 15		▮	3

Product Information

Survey ESR is designed for all automated and manual erythrocyte sedimentation rate methods, except for the Sedimat® 15. Survey ESR1 is designed for the Sedimat® 15. Each shipment will include three 6.0-mL whole blood specimens.

Transfusion-Related Cell Count TRC

Procedure	TRC	Challenges per Shipment
Platelet count (Platelet-Rich Plasma)	▮	5
WBC count (Leukocyte-Reduced Platelet Suspension)	▮	2
WBC count (Leukocyte-Reduced Red Blood Cell Suspension)	▮	2

Product Information

Survey TRC provides hematology and/or transfusion medicine laboratories with proficiency testing material for various cell count procedures. The Platelet-Rich Plasma material can be utilized for both manual and automated platelet count methods. The Leukocyte-Reduced Red Blood Cell suspensions and Leukocyte-Reduced Platelet suspensions provide laboratories with an opportunity to assess their ability to perform low white blood cell (WBC) counts. ***Note: The Leukocyte-Reduced Red Blood Cell and Leukocyte-Reduced Platelet materials must be used with a Nageotte chamber or flow cytometry.***

Each shipment will include five 1.5-mL suspensions of stabilized mammalian platelets (Platelet-Rich Plasma), two 1.0-mL vials containing a leukocyte-reduced red blood cell material, and two 1.0-mL vials containing a leukocyte-reduced platelet material.

HemoCue Combination HCC

Procedure	HCC	Challenges per Shipment
Hemoglobin	▮	2
Glucose	▮	2

Product Information

Survey HCC is designed for participants using the HemoCue® and Stanbio instruments.

Sickle Cell Screening SCS

Procedure	SCS	Challenges per Shipment
Sickling test	▮	3

Product Information

Each shipment will contain three 0.6-mL stabilized human erythrocyte specimens.

Hemoglobinopathy HG

Procedure	HG	Challenges per Shipment
Abnormal hemoglobin(s) identification	▮	4
"Dry lab" educational challenges	▮	2 per year
Hemoglobin A_2 quantitation	▮	4
Hemoglobin F quantitation	▮	1
Sickling test	▮	4

Product Information

Survey HG is designed for laboratories performing comprehensive and extensive hemoglobinopathy identification procedures. Laboratories performing only sickling tests should consider Survey SCS above. Each shipment will contain four 0.5-mL stabilized red blood cell specimens. In addition, two "dry lab" challenges (electrophoresis pattern diagrams) will be provided annually.

Fetal Red Cell Determination HBF

Analyte/Procedure	HBF	Challenges per Shipment
F Cell value	▮	2
Hemoglobin F, qualitative (fetal screen)	▮	2
Hemoglobin F, quantitative	▮	2

Product Information

The F cell value is compatible with flow cytometry methods. Qualitative (screen) Hemoglobin F is compatible with E-rosette testing for D(Rh_o) fetal red blood cells in the maternal circulation. Quantitative Hemoglobin F is compatible with Kleihauer-Betke and flow cytometry methods. Each shipment will include two 1.2-mL liquid stabilized red blood cell specimens.

For competency assessment of technologists' ability to perform fetal red cell quantitation, please refer to Survey TMCAF – Transfusion Medicine Competency Assessment – Fetal Red Cell Quantitation in Chapter 16.

Fetal Hemoglobin APT

Analyte	APT	Challenges per Shipment
Fetal hemoglobin	▮	2

Product Information

Each shipment of Survey APT will include two vials of simulated gastric fluid.

Amniotic Fluid Leakage (Nitrazine) AFL

Analyte	AFL	Challenges per Shipment
pH interpretation	▮	2

Product Information

Survey AFL is designed for laboratories performing pH using Nitrazine paper and is compatible with Amniotest™.

Rupture of Fetal Membrane Testing ROM

New

Analyte	ROM	Challenges per Shipment
Placental Alpha Microglobulin-1 (PAMG-1)	▮	2

Product Information

Each shipment of Survey ROM will contain two liquid simulated vaginal specimens for assessment of rupture of fetal membrane using the AmniSure® test kit.

Blood Parasite BP

Analyte/Procedure	BP	Challenges per Shipment
Thick blood film, Giemsa-stained	▮	5*
Thin blood film, Giemsa-stained	▮	5

Product Information

Survey BP meets regulatory requirements for laboratories performing only blood parasite testing. Survey BP will consist of five thin blood films and five corresponding thick films (*when available) per shipment. The samples will include a variety of blood parasites, including *Plasmodium, Babesia, Trypanosoma*, and a variety of filarial worms. Thick film examination is the gold standard for detection of blood parasites, and this Survey will allow participants to compare the thick and thin film appearance of a wide variety of blood parasites.

Viscosity V

Procedure	V	Challenges per Shipment
Viscosity	▮	2

Product Information

Each shipment will include two 10.0-mL serum specimens.

Glucose-6-phosphate Dehydrogenase G6PDS

Procedure	G6PDS	Challenges per Shipment
G6PD	▮	2

Product Information

Each shipment includes two lyophilized hemolysate samples for the quantitative and qualitative determination of glucose-6-phosphate dehydrogenase.

Clinical Microscopy

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

Clinical Microscopy CM, CMP

Analyte/Procedure	CM	CMP	Challenges per Shipment
Bilirubin	▮	▮	3
Glucose	▮	▮	3
hCG (qualitative)	▮	▮	3
Blood or hemoglobin	▮	▮	3
Ketones	▮	▮	3
Leukocyte esterase	▮	▮	3
Nitrite	▮	▮	3
Osmolality	▮	▮	3
pH	▮	▮	3
Protein (qualitative)	▮	▮	3
Reducing substances	▮	▮	3
Specific gravity	▮	▮	3
Urobilinogen	▮	▮	3
Urine sediment photomicrographs (35mm slide)	▮		4
Body fluid photomicrographs (35mm slide)	▮		6
Urine sediment photographs		▮	4
Body fluid photographs		▮	6
Supplemental CD-ROM ***NEW***		▮	1 CD with 10 images

For CMP only the color photographs are to be used for reporting challenges. The supplemental CD-ROM has been provided to allow your laboratory to project and view the images in greater detail.

Product Information

Survey CM is designed for laboratories that perform routine urinalysis and body fluid testing. Each shipment of Survey CM will include three 10.0-mL liquid urine specimens, four urine sediment photomicrographs, and six body fluid photomicrographs.

Survey CMP will include three 10.0 mL liquid urine specimens, four urine sediment photographs, six body fluid photographs, and a supplemental CD-ROM containing digital images.

An education activity is planned that includes reading material found in the Participant Summary/Final Critique and online learning assessment questions. All laboratory staff can participate individually and earn CME/CE credit without leaving the laboratory.

Product Fulfillment Group CM

Dipstick Confirmatory Testing DSC

Analyte/Procedure	DSC	Challenges per Shipment
Bilirubin	▮	2
Sulfosalicylic acid (SSA)	▮	2

Product Information

Survey DSC is designed for laboratories performing confirmatory testing for bilirubin and protein urine dipstick results. Each shipment will include two 12.0-mL liquid urine specimens.

Product Fulfillment Group CM

Microalbumin/Creatinine UMC

Analyte/Procedure	UMC	Challenges per Shipment
Microalbumin, semi-quantitative	▮	2
Creatinine	▮	2
Albumin: Creatinine ratio	▮	2

Product Information

Survey UMC is designed for dipstick or semi-quantitative methods. It is not appropriate for quantitative methods.

Automated Urinalysis UAA, UAA1

	Challenges per Shipment	
Analyte	**UAA**	**UAA1**
RBC, quantitative	2	2
WBC, quantitative	2	2
Crystals, semi-quantitative	2	
Epithelial cells, semi-quantitative		2
Bacteria, semi-quantitative	2	2
Casts, semi-quantitative	2	2

Product Information

Survey UAA is designed for participants using Iris instruments. Survey UAA1 is designed for participants using the Sysmex UF-50 and UF-100. Each shipment will include two liquid urine samples.

Clinical Microscopy Miscellaneous CMM, CMMP

Specimen Type	CMM	CMMP New	Challenges per Shipment
Fern Test	▮	▮	1
KOH Preparations	▮	▮	1
Nasal Smears	▮	▮	1
Pinworm Preps	▮	▮	1
Stool for Leukocytes	▮	▮	1
Vaginal Wet Preparations	▮	▮	1
Photomicrographs (35mm slide)	▮		Total of 6
Color Photographs		▮	Total of 6
Supplemental CD-ROM ***NEW***		▮	1 containing 6 images

For CMMP only the color photographs are to be used for reporting challenges. The CD-ROM has been provided to allow your laboratory to project and view the images in greater detail.

Product Information

Surveys CMM and CMMP are designed for laboratories performing provider-performed microscopy and will include images from the specimen types listed above. Each shipment of Survey CMM will include six photomicrographs. Each shipment of Survey CMMP will include six color photographs and a supplemental CD-ROM containing images.

Product Fulfillment Group CM

Crystals BFC, URC

New

Procedure	BFC	URC	Challenges per Shipment
Body Fluid Crystals	▮		2
Red Blood Cells	▮		2
White Blood Cells	▮		2
Urine Crystals		▮	2

Product Information

Each shipment of BFC will include two simulated body fluid specimens for identification of red blood cells, white blood cells, and crystals found in body fluid specimens (eg, synovial fluid.)

Each shipment of URC will include two simulated urine specimens for identification of crystals found in urine.

Product Fulfillment Group CRS

Special Clinical Microscopy SCM1, SCM2

Procedure	SCM1	SCM2	Challenges per Shipment
Urine Hemosiderin, Prussian blue	▮		2
Urine Eosinophils, Wright stain		▮	2

Product Information

Each shipment of Survey SCM1 will include a color photograph with two images for evaluation of the presence or absence of urine hemosiderin. Each shipment of SCM2 will include a color photograph with two images for the evaluation of the presence or absence of urine eosinophils.

Product Fulfillment Group SCM

Occult Blood OCB

Analyte	OCB	Challenges per Shipment
Occult blood	▮	3

Product Information

Each shipment will include three vials of a simulated fecal material.

Product Fulfillment Group CM

Gastric Occult Blood GOCB

Analyte	GOCB	Challenges per Shipment
Gastric occult blood	▮	3
Gastric pH	▮	3

Product Information

Each shipment will include three vials of a simulated gastric material.

Product Fulfillment Group CM

Hemocytometer Fluid Count HFC

Procedure	HFC	Challenges per Shipment
Red blood cell count	▮	3
White blood cell count	▮	3
Cytopreparation differential	▮	3

Product Information

Survey HFC is designed to assess accuracy when performing manual cell counts on body fluids or cerebrospinal fluid. Each shipment will include three vials of a simulated body fluid material. Red blood cells and white blood cells can be readily identified and counted using a hemocytometer. Cell counts will be comparable to those of body fluids and cerebrospinal fluid. The material can also be used for cytopreparation differentials.

Automated Body Fluid – ABF Series

Analyte	ABF1	ABF2	ABF3	Challenges per Shipment
Red blood cell count	▮	▮	▮	2
White blood cell count	▮	▮	▮	2

Product Information

Each shipment of Survey ABF1, ABF2, and ABF3 will include two vials of simulated body fluid.

Automated Body Fluid, Method Matrix

Instrument	ABF1	ABF2	ABF3
Bayer ADVIA 120/2120	▮		
Beckman Coulter LH 700 Series		▮	
Sysmex XE 2100, XT-1800i, XT-2000i		▮	
Iris iQ 200			▮
Iris Diagnostics 500			▮

Semen Analysis SC, SC1, SM, SV, ASA

Procedure	SC	SC1	SM	SV	ASA	Challenges per Shipment
Sperm count & presence/absence* (all manual methods and CASA systems)	▮					2
Sperm count & presence/absence* (Additional volume)		▮				2
Sperm morphology			▮			2
Sperm viability				▮		2
Antisperm antibody IgG					▮	2

** Note: The SC Survey is appropriate for participants that test post-vasectomy specimens.*

Product Information

Procedures can be combined to meet your laboratory's individual testing requirements.

Surveys SC and SC1 are designed for laboratories that report qualitative and quantitative sperm counts. Each challenge in Survey SC will include two 0.3 mL stabilized human sperm specimens; each challenge in SC1 will include two 1.0 mL stabilized human sperm specimens.

Each shipment of Survey SM will include two prepared slides for staining.
Each shipment of Survey SV will include two eosin-negrosin-stained slides.
Each shipment of Survey ASA will include two serum specimens.

Product Fulfillment Group SEM

Sperm Motility & Morphology SPCD

Procedure	SMCD	SM1CD	Challenges per Shipment
Sperm count	▮		2
Sperm motility	▮		2
Sperm morphology		▮	2

Product Information

Each shipment of SMCD will include a CD with video clips for sperm motility and sperm count.
Each shipment of SM1CD will include a CD with images for sperm morphology analysis.

Product Fulfillment Group SPCD

Embryology EMB

Analyte	EMB	Challenges per Shipment
Embryo Transfer	▮	4

Product Information

Each shipment of Survey EMB will include a CD with video clips of embryos, three and five days post-fertilization.

Rapid Urease RUR

Analyte	RUR	Challenges per Shipment
Urease	▮	2

Product Information

Each shipment of Survey RUR will include two simulated gastric biopsy specimens. Survey RUR is compatible with methods such as CLOTEST®.