



## Instructions for Survey MQ 2017-4

### General:

#### Storage and preparation of samples

- Refrigerated samples must be removed from the refrigerator 15-30 minutes prior to analysis (exception are blood gas ampoules, 5 hours) so they are at room temperature.
- Ready-to-use samples only need to be mixed.
- Most of our samples are human origin. Please treat them with the appropriate security measures and dispose them according your local regulations.

### Sample Analysis

- The samples must be analyzed using the same method that you also use for patient samples.
- Replicate measurements are permitted only if also performed with patient samples.
- Samples may not be transferred to other laboratories.

### Submission of Results

- The results must be signed off by the responsible laboratory manager / physician.
- The results may only be discussed with colleagues from other laboratories once the survey is complete, i.e., the evaluation has been sent.

### Administration

- **IMPORTANT:** Check that the information on the protocol sheet is accurate and complete. You can enter changes and additions on the form in hand writing.
- Do not send samples back to us. We can only reuse the plastic letter inlay cases and the slide cases.
- Please do not forget to retain a photocopy of your protocol sheet until you have received and checked the analysis. .

### Estimated glomerular filtration rate (eGFR)

- To evaluate patient's renal function, plasma creatinine should be measured and the eGFR calculated. All the participants who are measuring creatinine will find an additional entry for eGFR in the protocol sheets. If you are not yet working with eGFR, you will find further information and a calculator on [www.mqzh.ch](http://www.mqzh.ch).

**Patient: 40 years old women, white, 50 kg**

### H1 - Hematology

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Preparation      Rotate and tilt 2-3 minutes by hand until no more cells are stuck to the bottom of the vial.  
Analyzes        Hemoglobin, hematocrit, leukocytes, platelets and erythrocytes.

### H2 – Hematology Plus

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Preparation      Rotate and tilt 2-3 minutes by hand until no more cells are stuck to the bottom of the vial.  
Analyzes        Hemoglobin, hematocrit, leukocytes, platelets and erythrocytes, Crp  
Important       For hemoglobin, the only unit we accept is g/l.  
Instruments     Microsemi, Micros 100, Micros200

### H3 - Blood smear

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Samples         2 slides, stained, with cover glass.  
Analyzes        Microscopic differential of peripheral blood cells.

### H4 - Parasites in blood

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Samples         1 slide, stained, with cover glass  
Analyzes        Identifikation of parasites and number of parasitaemia.

**If you want the blood counts only for training purposes, please let us know.**

**Then, H3 differential blood count and H4 Parasitic hematology will not appear on your certificate.**

**H5 - Hematology Blood Gases**

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Samples	Vial with aqueous solution
Analyzes	Hemoglobin, Hematocrit
Preparation	The samples must be at least 5 h stored prior to use at room temperature (about 25 ° C). Mix the vial carefully.

**H6 - Hemogram automatic 5-Part**

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Samples	1 ml fresh Blood (Sample has to be tested immediately, no alternate date possible.)
Analyzes	WBC, RBC, PLT, HK, lymphocytes, monocytes, neutrophils, basophils, eosinophils.

**H7 - Reticulocytes automatic**

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Samples	1 ml fresh Blood (Sample has to be tested immediately, no alternate date possible.)
Analyzes	Reticulocytes

**H10 - Erythrocyte sedimentation rate**

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Samples	5 ml Blood
Analyzes	Erythrocyte sedimentation rate

**H11 – Malaria rapid test**

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Samples	5 µl Blood
Analyzes	<i>Plasmodium spp.</i> , <i>P. vivax</i> , <i>P. falciparum</i>

**G1 - coagulation, oral anticoagulation**

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Preparation	Pipette 1 ml of distilled water to the vial. Close the bottle again. Dissolve by careful rotation and allow to stand for 20 at room temperature. Carefully mix one more time by hand before measuring.
Analyzes	INR, PTT, fibrinogen.
Comment	Special Instructions for Hepato-Quick, capillary citrate method: Add 300 µl NaCl solution (0.9%) to the dissolved sample and mix Add 100 µl citrate buffer solution (pH 4.5) to a measurement vial and add 20 µl sample. Use the entire volume (120 µl) in the assay. Continue by following the usual instructions.

**G2 - CoaguCheck Pro II**

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Preparation	You can find detailed instructions for measuring the internal quality control in the user instructions or at ( <a href="http://www.mqzh.ch">www.mqzh.ch</a> under "Instructions"). The survey specimen must be treated in the same way.
Analyzes	INR value, PTT.

**G3 - Coagulation, no anticoagulation**

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Preparation	Pipette 1 ml of distilled water to the vial. Close the bottle again and mix gently. Let stand at room temperature for 10 minutes. Measure within 60 minutes.
Analyzes	Quick, PTT, fibrinogen, thrombin time.
Comments	If the Quick is above 100%, please only report values "> 100."

**G4 - Clotting, heparin therapy**

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Preparation	Pipette 1 ml of distilled water to the vial. Close the bottle again and mix gently. Let stand at room temperature for 10 minutes. Measure within 60 minutes.
Analyzes	Quick, PTT, fibrinogen, thrombin time.

**G5 - D-dimer NC**

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Analyzes	D-dimer
Instruments	Nyco Card, Check-1VedaLab, UltiMed and Simplify.

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**G6 - D-dimer**

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Analyzes D-dimer  
Comments Participants with Vidas: With values > 1000, dilute the sample.

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**G11 - CoaguCheck XS Plus**

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Preparation You can find detailed instructions for measuring the internal quality control in the user instructions or at ([www.mqzh.ch](http://www.mqzh.ch) under "Instructions"). The survey specimen must be treated in the same way.  
Analyzes INR value.

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**G12 - Hemochron Jr.**

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Preparation You can find detailed instructions for measuring the internal quality control in the user instructions or at ([www.mqzh.ch](http://www.mqzh.ch) under "Instructions"). The survey specimen must be treated in the same way.  
Analyzes INR value  
Important Measure the survey specimen in a citrate cuvette. If you measure capillary blood in your practice you can order the citrate PT cuvettes for the survey test at Axon Lab.

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**G14 - Micro INR**

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Preparation You can find detailed instructions for measuring the survey sample at ([www.mqzh.ch](http://www.mqzh.ch) under "Instructions")  
Analyzes INR value

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**G16 - Xprecia**

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Preparation You can find detailed instructions for measuring the survey sample at ([www.mqzh.ch](http://www.mqzh.ch) under "Instructions")  
Analyzes INR value

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**I16 - CRP**

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Analyzes CRP  
Comments Quick Read: Treat sample the same as patient whole blood.  
Nycocard single test: for reading, set instrument to CRP plasma/serum.  
Microsemi: You can find detailed instructions for measuring survey specimens on our homepage at [www.mqzh.ch](http://www.mqzh.ch).

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**I2 - Plasmaproteins**

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Analyses IgA, IgG, IgM, IgE, C3, C4,  $\alpha$ -1-Antitrypsin,  $\alpha$ -1-Glycoprotein, Antistreptolysin, Haptoglobin, Transferrin,  $\beta$ -2-Mikroglobulin, Coeruloplasmin, Praealbumin.

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**I3 - Allergology**

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Comments Participants with CAP or Immulite can perform the following analyzes:  
Total IgE, IgE multi-specific (sx1, rx2 and fx5), IgE specific (birch t3, peanut f13, cat epithelia e1)  
Participants with AllergyScreen from Teomed or allergy tests from Intex can simply enclose the findings as before.

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**I5 - CRP / Lp (a)**

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Analyzes CRP hs, lipoprotein (a)

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**K1 - Clinical Chemistry**

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Analyzes Albumin, AP, amylase, PAmylase, bilirubin, calcium, chloride, cholesterol, HDL-cholesterol, CK, iron, GGT, glucose, uric acid, urea, potassium, creatinine, LDH, lithium, magnesium, sodium, phosphate, protein, AST/GOT, ALT/ GPT, triglycerides, fructosamine, lactate.  
Comments If you determine glucose only, you can order the sample K2 (liquid).  
Participants with Cholestech LDX, please set instrument to serum.

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**K2 - Glucose**

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Analyzes Glucose  
Comments Only for glucometers.

**K3/K18 - HbA1c**

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Analyzes	HbA1c
Comments	Please perform the measurements as soon as possible (fresh whole blood). If the NycoCard displays "Hb too low", you must add two capillaries to the dilution solution (R1/Reagent). If the NycoCard displays "Reduc. Hb conc" display, you must combine two tubes of reagent solution (R1) and add a capillary. There are two different samples (A and B). Please check that the labels on the protocol sheet match the label on your specimen.

**K4/K9/K16 - blood gases**

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Analyzes	pO <sub>2</sub> , pCO <sub>2</sub> , pH, Na <sup>+</sup> , K <sup>+</sup> , Ca <sup>++</sup> , Cl <sup>-</sup> , glucose, lactose.
Comment	For OPTI devices you need the control K7 OPTI or K9 OPTI CCA. Radiometer: Please refer to the instrument-specific instructions on our homepage. For creatinine, you need sample K1.
Preparation	The samples must be stored at room temperature for at least 5 h prior to use (approx. 25°C). Mix the ampoule vigorously. Prepare your analyzer. Break open the ampoule and measure immediately, as if it were a patient sample.

**K5 - Cardiac Markers**

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Analyzes	Troponin I, troponin T, myoglobin, CK-MB Mass (Immunoassay)
Note	Participants with the following devices have to order special specimens: Cobas h232: K8; Triage: K26; Samsung IB10: K31

**K6 - Hormones**

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Analyzes	TSH, T3, T4, FT3, FT4, Cortisol, LH, FSH, Prolactin (PRL), Testosteron, Insuline, Estradiol
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**K8 - Cobas h232/ Cardiac Reader**

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Analyzes	Troponine T, myoglobin, D-Dimer, pro BNP, CK-MB
Note	Cobas h232 / Cardiac Reader + TropT sensitive

**K10 - Anemia**

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Analyzes	Ferritine, fFolate, vitamin B12
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**K12 - Neonatal Bilirubin**

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Analyzes	Bilirubin: total, direct, indirect and neonatal
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**K14 - Tumor Markers**

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Analyzes	PSA, free PSA, Alpa-1-fetoprotein (AFP), carcinoembryonic antigen (CEA), human chorionic gonadotropin (HCG) qn, CA 125, CA 19-9, CA 15-3, S100, NSE, CA 72-4, Cyfra 21-1, Thyroglobulins
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**K15 - CK-MB Activity**

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Analysis	CK-MB activity.
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**K17 - BNP / NT-pro BNP plasma**

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Preparation	Please dissolve the lyophilisate carefully in 1000 µl distilled water. Mix the sample every once in a while by hand for 20 minutes.
Analyzes	BNP, NT-proBNP.

**K19 - CardioChek Lipidpanel**

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Analyzes Cholesterol, HDL Cholesterol, Triglycerides

**K20 - Procalcitonin**

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Analyzes Procalcitonin (PCT)

**K21 - PTH**

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Analyzes Intact Parathyroid hormone (PTH), 25-OH Vitamin D, Osteocalcin

**K22 - Osmolality**

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Analyzes Osmolality, sodium, potassium, glucose, urea  
Comment Osmolality of specimen K1 is no longer evaluated because no reasonable values are measurable due to the presence of the stabilizers in K1.

**K24 - Therapeutic Drug Monitoring**

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Analysis Digoxin, valproic acid, carbamazepine, phenobarbital, phenytoin and others on demand.

**K25 - Cystatin C**

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Analysis Cystatin C

**K11/K26 - Triage**

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Analysis Troponin I, D-dimer, CK-MB Mass, myoglobin, BNP

**K28 - Ethanol**

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Analysis Ethanol, ammonia

**K29 - calprotectin**

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Analyzes Calprotectin  
Important The sample is shipped frozen. Please measure the sample immediately after thawing the specimen. If you cannot immediately measure the sample, please store at -20°C

**K30 - Lipids Afinion and Cobas b101**

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Analyzes Cholesterol, HDL cholesterol, triglycerides

**K31 - Samsung IB 10**

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Analyzes D-Dimer, Troponin I, NTproBNP

**K32 - Homocystein**

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Analyzes Homocystein

**K34 - Clinical Chemistry 2**

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Analyzes Lipase, cholinesterase, carbon dioxide, copper, zinc

**K36 - CDT**

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Analyzes CDT

**K35 Cerebrospinal fluid**

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Analyzes Glucose, lactate, protein, LDH, potassium, sodium, chloride, albumin, IgG, IgA, IgM.

**K37 - CDT**

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Analyzes CDT, tacrolimus, sirolimus

**U1 - urine quantitatively**

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Analyzes Quantitative: Amylase, calcium, chloride, glucose, magnesium, osmolality, pH, phosphate, potassium, protein, sodium, urea, uric acid.  
Comments Not suitable for urine test strips.  
For urinary albumin and creatinine in urine, the sample U5 must be used for all devices.

## **U2 - Urine test strips**

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Analyzes	Urine test strips and pregnancy test.
Important	For our analyses, we differentiate between the various types of test strips and devices. Please check that the information on the protocol sheet matches your strips and mark the result with a check mark. For example, if you use the 7-series test strips or no HcG test, simply do not check anything with the corresponding analysis. Then it also does not show up on your analysis.

## **U3 - urine drugs**

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Analyzes	Amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, methadone, opiates, methaqualone, methamphetamine, LSD, tricyclic antidepressants, paracetamol, phencyclidine.
Comments	In all methods, only qualitative results (positive/negative) are evaluated.

## **U5 - Urine Creatinin / Microalbumin**

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Analyzes	Urine albumin (microalbumin) and urine creatinine
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## **V1 - HIV rapid test**

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Analyzes	HIV screening with rapid tests.
Comment	Positive specimens are not infectious.

## **S1 - Fecal occult blood**

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Preparation	The simulated stool sample is ready for use, and is used in exactly the same way as a patient specimen.
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## **B1 - Strep A**

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Preparation	Insert the swab as if it were fresh.
Analyzes	Strep A Rapid Test.
Comments	Please compare the name of the test cassette used with the information on the protocol sheet and correct if necessary. Users of QuickVue In-Line Tests: You can find detailed instructions at <a href="http://www.mqzh.ch">www.mqzh.ch</a> under "Instructions".

## **B2 - Uricult**

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Preparation	You can find detailed instructions for dissolving the Uricult specimens ( <a href="http://www.mqzh.ch">www.mqzh.ch</a> "Instructions").
Analyzes	Only bacteria count needs to be reported.

## **B4 - Rubella**

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Analyzes	Rubella IgG, IgM
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## **B5 - Toxoplasmosa**

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Analyzes	Toxoplasmosa IgG, IgM
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## **B6 - Syphilis**

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Analyzes	Treponema IgG, IgM, TPHA/TPPA, RPR/VDRL
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## **B7 - Cytomegaliovirus**

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Analyzes	Cytomegalie IgG, IgM
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## **B8 - Varicella**

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Analyzes	Varicella IgG, IgM
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**B9 - Bacteriology**

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Samples	5 samples (2x resistance testing, 5x identification).
Analyzes	Chapter 3.2.2 of AL.
Important	Dissolve and process specimen in the safety cabinet only!
Preparation	Use scissors to carefully remove the inner small golden metal ring (cap in the center top). Disinfect the rest of the metal cap and the gray rubber. Reconstituted specimens with 0.5 ml 0.9% NaCl by injecting the liquid through the gray rubber with a sterile syringe. Remove the outer golden metal ring (outside top lid) only after the samples have completely dissolved.
Note:	Even if you forward the material, you must still process it for the survey.

**B 10 – Gram stain**

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Samples	1 slide with clinical specimen after heat fixation
Analyzes	Gram-stain

**B11 - B17 - GeneXpert**

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Samples	B11: Chlamydia trachomatis und Nesseria gonorrhoeae B12: Staphylococcus aureus (SA), MRSA B13: Clostridium difficile B14: Streptococcen Group B B15: Norovirus (GI and GII) B16: Influenzavirus/RSV (Influenza A, Influenza B, RSV), (also for Alere-i Influenza) B17: Mycobacterium tuberculosis (MTB)
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