



## Instructions for Survey MQ 2017-3

### 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: 25 years old men, white, 75 kg**

### H1/H9 - 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.                              |
| Important   | For hemoglobin, the only unit we accept is g/l.  |

### 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).<br>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.<br>Close the bottle again. Dissolve by careful rotation and allow to stand for 20 at room temperature.<br>Carefully mix one more time by hand before measuring.  |
| Analyzes    | INR, PTT, fibrinogen.   |
| Comment     | Special Instructions for Hepato-Quick, capillary citrate method:<br>Add 300 µl NaCl solution (0.9%) to the dissolved sample and mix<br>Add 100 µl citrate buffer solution (pH 4.5) to a measurement vial and add 20 µl sample.<br>Use the entire volume (120 µl) in the assay.<br>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.<br>Close the bottle again and mix gently.<br>Let stand at room temperature for 10 minutes.<br>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.<br>Close the bottle again and mix gently.<br>Let stand at room temperature for 10 minutes.<br>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**

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

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**G11 - CoaguCheck XS Plus**

|             |   |
|-------------|---|
| 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.  |

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**G12 - Hemochron Jr.**

|             |   |
|-------------|---|
| 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   |
| 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**

|             |  |
|-------------|--|
| Preparation | You can find detailed instructions for measuring the survey sample at ( <a href="http://www.mqzh.ch">www.mqzh.ch</a> under "Instructions") |
| Analyzes    | INR value  |

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**G16 - Xprecia**

|             |  |
|-------------|--|
| Preparation | You can find detailed instructions for measuring the survey sample at ( <a href="http://www.mqzh.ch">www.mqzh.ch</a> under "Instructions") |
| Analyzes    | INR value  |

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**I1/I6 - CRP**

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|----------|---|
| Analyzes | CRP   |
| Comments | Quick Read: Treat sample the same as patient whole blood.<br>Nycocard single test: for reading, set instrument to CRP plasma/serum.<br>Microsemi: You can find detailed instructions for measuring survey specimens on our homepage at <a href="http://www.mqzh.ch">www.mqzh.ch</a> . |

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**I2 - Plasmaproteins**

|          |   |
|----------|---|
| 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:<br>Total IgE, IgE multi-specific (sx1, rx2 and fx5), IgE specific (birch t3, peanut f13, cat epithelia e1)<br>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).<br>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).<br>If the NycoCard displays "Hb too low", you must add two capillaries to the dilution solution (R1/Reagent).<br>If the NycoCard displays "Reduc. Hb conc" display, you must combine two tubes of reagent solution (R1) and add a capillary.<br>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.<br>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).<br>Mix the ampoule vigorously.<br>Prepare your analyzer.<br>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:<br>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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|          |   |
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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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|          |   |
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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.<br>Mix the sample every once in a while by hand for 20 minutes. |
| Analyzes    | BNP, NT-proBNP.  |

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**K19 - CardioChek Lipidpanel**

Analyzes Cholesterol, HDL Cholesterol, Triglycerides

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**K20 - Procalcitonin**

Analyzes Procalcitonin (PCT)

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**K21 - PTH**

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

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**K22 - Osmolality**

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.

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**K24 - Therapeutic Drug Monitoring**

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

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**K25 - Cystatin C**

Analysis Cystatin C

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**K11/K26 - Triage**

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

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**K28 - Ethanol**

Analysis Ethanol, ammonia

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**K29 - calprotectin**

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

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**K30 - Lipids Afinion and Cobas b101**

Analyzes Cholesterol, HDL cholesterol, triglycerides

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**K31 - Samsung IB 10**

Analyzes D-Dimer, Troponin I, NTproBNP

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**K32 - Homocystein**

Analyzes Homocystein

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**K34 - Clinical Chemistry 2**

Analyzes Lipase, cholinesterase, carbon dioxide, copper, zinc

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**K36 - CDT**

Analyzes CDT

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**K35 Cerebrospinal fluid**

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

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**K37 - CDT**

Analyzes CDT, tacrolimus, sirolimus

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**U1 - urine quantitatively**

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.

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## **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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|          |  |
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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.<br>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).<br>Disinfect the rest of the metal cap and the gray rubber.<br>Reconstituted specimens with 0.5 ml 0.9% NaCl by injecting the liquid through the gray rubber with a sterile syringe.<br>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<br>B12: Staphylococcus aureus (SA), MRSA<br>B13: Clostridium difficile<br>B14: Streptococcen Group B<br>B15: Norovirus (GI and GII)<br>B16: Influenzavirus/RSV (Influenza A, Influenza B, RSV), (also for Alere-i Influenza)<br>B17: Mycobacterium tuberculosis (MTB) |
|---------|---|