

P 12 Clinical microbiology I

To study: Sampling, specimen transport (from textbooks, www etc.)

From spring term: Microscopy

Task 1: Indications for microbiological examination

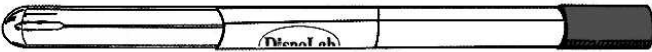
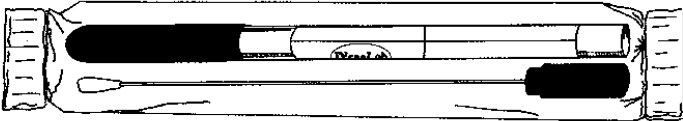
For following casuistries, fill in the table.

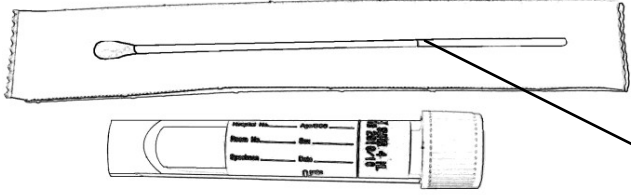
- ❶ Fill in always the case description (left column).
- ❷ Try to find out your solution. Try to structure your answer as follows:
 - Microbiological examination: yes/no
 - ❖ **yes** → select a specimen
 - ❖ **no** → select other steps, e. g. direct treatment – what antibiotics etc.)
- ❸ After the three minute limit, write down a correction according to the teacher's explanation.

	Description of a case	Your solution (⌚ 3 minutes)	Correction according to the teacher's explanation
a			
b			
c			
d			

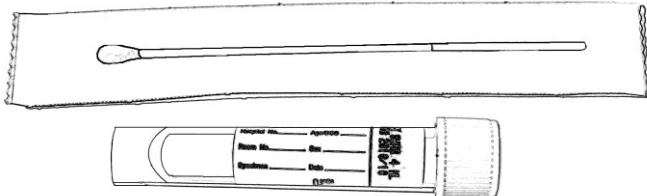
Task 2: Swabs and vessels

Observe the swabs in your table and fill in their "identity cards".

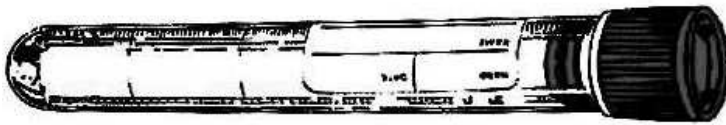
Name: Plain swab		
	Stick material	plastic, wood, aluminium
	Swab material	synthetic cotton
Practical use:		
Name: Swab with Amies transport medium		
	Stick material	plastic or aluminium
	Swab material	synthetic cotton
	Medium	Amies (Stuart, Cary Blair)
<i>Note: The medium may contain charcoal (then it is black); without charcoal, it would be colourless.</i>		
Practical use:		
Variant with aluminium stick is used for		

Name: Fungi-Quick swab		
	Stick material	plastic
	Transport medium colour	colourless
	Cap colour	

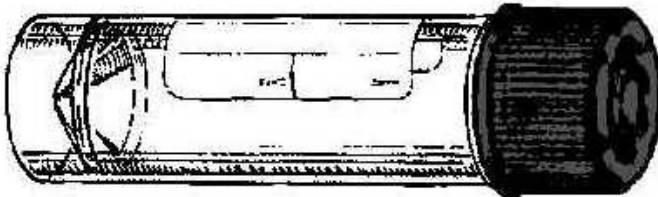
Practical use:

Name: C. A. T. swab		
	Stick material	plastic
	Transport medium colour	colourless
	Cap colour	

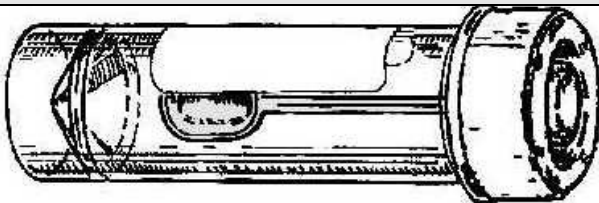
Practical use:

Name: Common test tube for microbiology		
	Sterile? (yes or no)	
	Description	made of polystyrene, 16 × 100 mm, 10 ml



Practical use:

Name: Sputum test tube		
	Sterile? (yes or no)	
	Description	made of polystyrene or polypropylene, 26 × 92 mm, 30 ml

Practical use:

Name: Stool container		
	Sterile? (yes or no)	
	Description	made of polypropylene, 26 × 82 mm, 30 ml

Practical use:

Name:		Sampling vessel for urine	
		Sterile? (yes or no)	
		Description	made of polypropylene, 45 × 70 mm, 120 ml
Practical use:			

Task 3: Other sampling methods than swabs and vessels

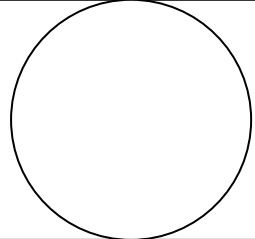
a) Imprint method

Perform the imprint method in pairs. Place a sterile filtration paper on your mate's forearm. Using tweezers, transport it carefully to a Petri dish with nutrient agar. After 10 seconds, remove it and throw it away.

b) Smears

In some cases it is recommended to send directly microscopic smear to the laboratory (actinomycosis, gonorrhoea, but also other genital infections). In gynecologic problems, often two specimens of a vaginal smear are sent to the laboratory. There, one is stained by Giemsa and the other by Gram.

Observe a result of a vaginal smear and draw your result in the laboratory report. Write down whether your slide was Gram or Giemsa stained.

	Gram/Giemsa staining

Task 4: Sampling in specific types of specimens

a) Blood cultures

Describe the use of three types of blood culture vessels.

blue	
green	
red	

Fill in which data should not be missing on the order form in the case of blood culture (only "material type/examination type" field)

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Explain:

Why is absolute sterility in blood culture samples more necessary than in any other blood specimens (e. g. those sent for biochemical examination)?

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How many blood cultures should be taken and why?

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Topic P12

Fill in the missing fields in the description of blood culture processing and examination according to the video clip and the teacher's explanation.

A blood culture vessel arrives in the laboratory. Here it is put into a _____.

The positive result is demonstrated by _____ and _____.

When the cultivation is positive, a smear is prepared and the content of the vessel is _____

onto the blood and Endo agar. Also, a preliminary _____ test is performed directly

from the specimen; as the inoculum is not standardized here, its results are only _____.

b) Urine

According to the teacher's explanation, tick which sentences concerning urine sampling and transportation are true/false.

Urine examination is recommended in non-complicated and necessary in complicated cystitis. <input type="checkbox"/> true <input type="checkbox"/> false
Microbiologists recommend the use of catheterized urine as a routine way of sampling the urine for bacteriology. <input type="checkbox"/> true <input type="checkbox"/> false
It is not important whether praeputium (in men) or labia minora (in women) are in the way of urine stream during sampling the urine for bacteriology. <input type="checkbox"/> true <input type="checkbox"/> false
External orifice of urethra should be carefully washed and eventually also disinfected before sampling the urine for bacteriology. <input type="checkbox"/> true <input type="checkbox"/> false
The vessel into which the patient urinates should be sterile. <input type="checkbox"/> true <input type="checkbox"/> false
The test tube used for urine transportation to the laboratory should have a yellow cap. <input type="checkbox"/> true <input type="checkbox"/> false
The order form should contain information whether the urine has been "routinely taken", catheterized, punctured, or whether it is a specimen taken from a permanent catheter. <input type="checkbox"/> true <input type="checkbox"/> false
Urine from a permanent catheter is equally important for bacteriological diagnostics as the catheterized urine (just for examination). <input type="checkbox"/> true <input type="checkbox"/> false
Urine specimen should be delivered to the laboratory within 2 hours after sampling; if this is impossible, it should be kept in a refrigerator. <input type="checkbox"/> true <input type="checkbox"/> false
Urine sample is better than urethral swab in gonorrhoea diagnostics. <input type="checkbox"/> true <input type="checkbox"/> false

c) Stool samples for different types of pathogens and toxins

For some purposes, it is possible to send rectal swabs, while for others, it is necessary to send a piece of stool, sometimes even refrigerated.

Fill in the next table.

Stool sent for	Type of specimen	Stool sent for	Type of specimen
bacteriology		virology – virus isolation	
mycology		parasitology	
virology – antigen detection		detection of the <i>Clostridium difficile</i> toxin	

Task 5: The order form

a) Filling in the order form

Fill in the following order form with a patient name and data and the requested examination related to the disease, according to a card that has been given to you by the teacher.

Kód pojišťovny 111	požaduje díl A	IČP Odbornost	Datum	Čís. dokladu	Pof. č.
POUKAZ NA VYŠETŘENÍ / OŠETŘENÍ					
Pacient	Č. pojištění		Základní diagnóza	IČP	
Variabilní symbol	Ostatní diagnózy		Odbornost		
Odeslán ad:	Kód náhrady		Datum	Kód	Poč.
Požadováno:	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
	14				
Poznámka:			Dne:		
razítko a podpis lékaře			razítko a podpis		

b) Order form common mistakes

To each of the following order forms write down what is wrong. There are some mistakes at filling in the order form, but you should also identify improperly requested examinations.
