AMRDETECTOOL
Detection in 30 min

Fit into MICROBIOLOGY TESTING WORKFLOW

High-income countries testing Workflows and AMR DetecTool

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EIT Health is supported by the EIT, a body of the European Union

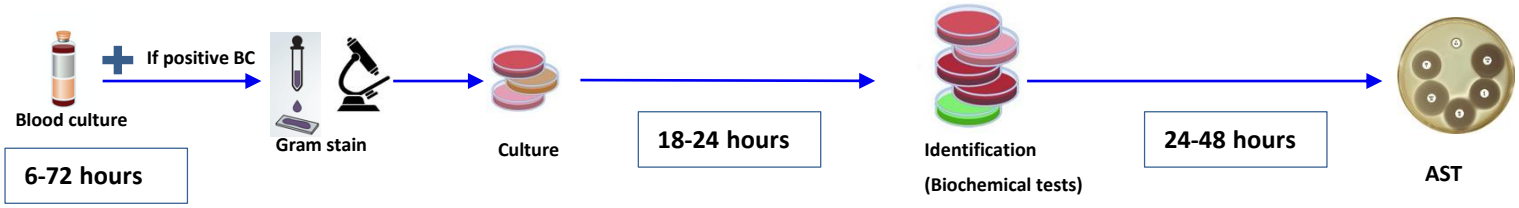
Testing Workflow

Variability → multiple valid workflows can co-exist. Different implementations of the standard (?) procedures

Labs conditioned by:

- Budget
- Prevalence
- Human resources
- Space
- Expertise
- Number of samples
- Reimbursement

Blood (traditional)



TAT: 3-4 days

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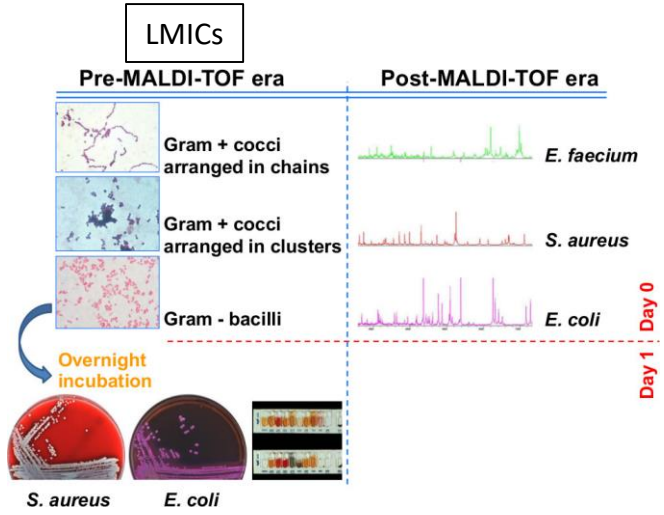
Modern Microbiology



Blood culture bacterial pellet (Pure bacteria)

Bypassing incubation

Gram staining ➡ **≤1h**
> 100% accurate

MALDI-TOF MS ➡ **≤1h**
> 99% accurate

Antibiotic suceptibility testing ➡ **16-24h**
> 99% accurate

POCT-PCR MRSA ➡ **2-3h**
Sensitivity 99%
Specificity 100%

LFIA <30 min

Croxatto, A et al. (2014). Preparation of a Blood Culture Pellet for Rapid Bacterial Identification and Antibiotic Susceptibility Testing. Journal of Visualized Experiments, (92).

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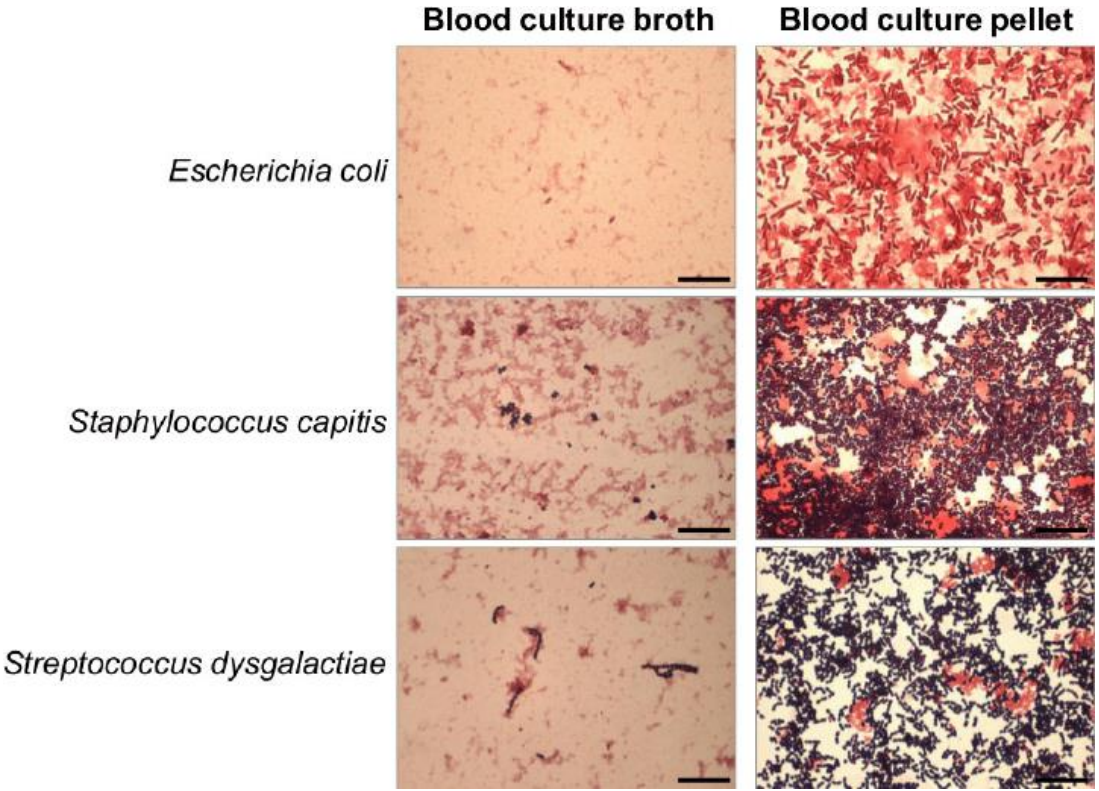
Culture vs pellet Gram stain



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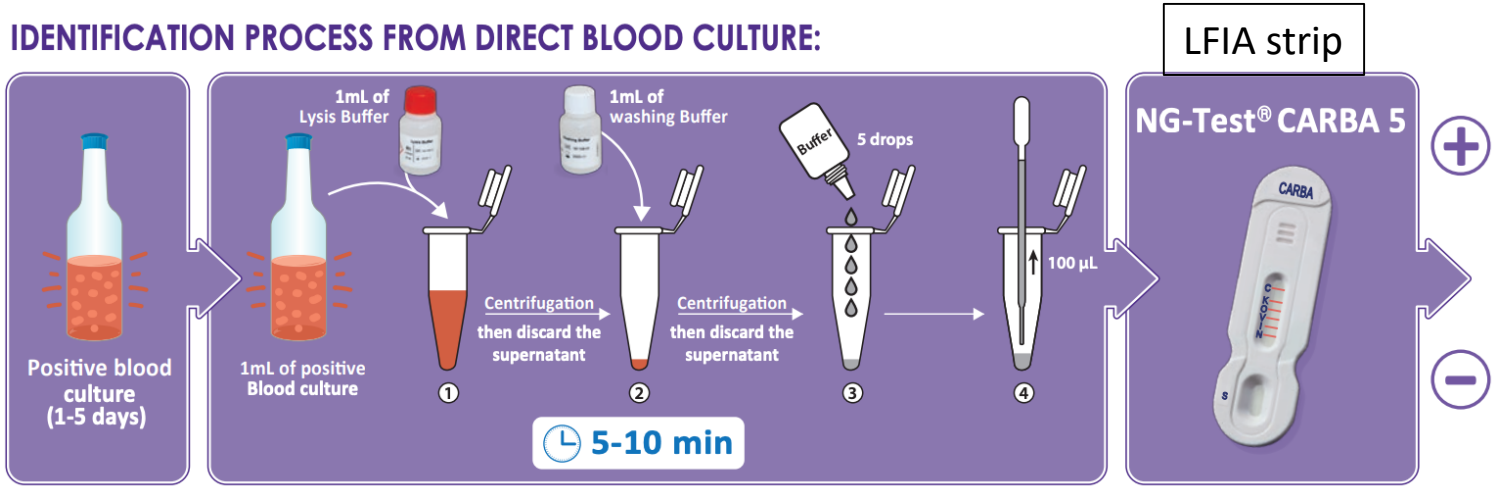
NG Biotech pellet preparation blood



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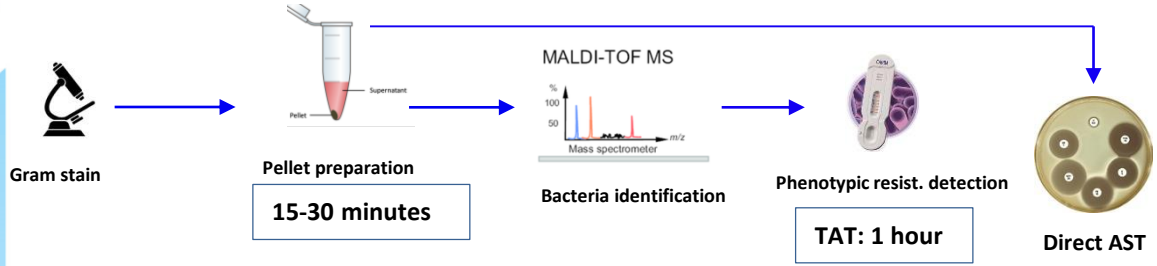
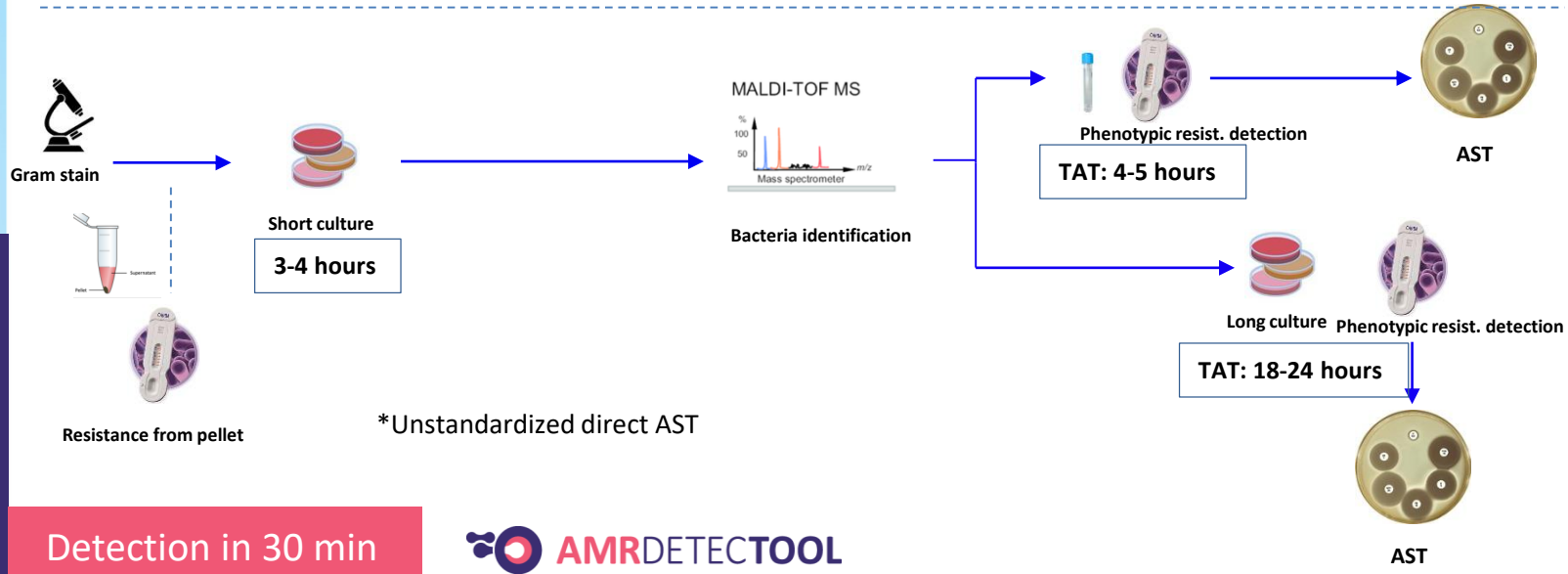
Blood Workflows





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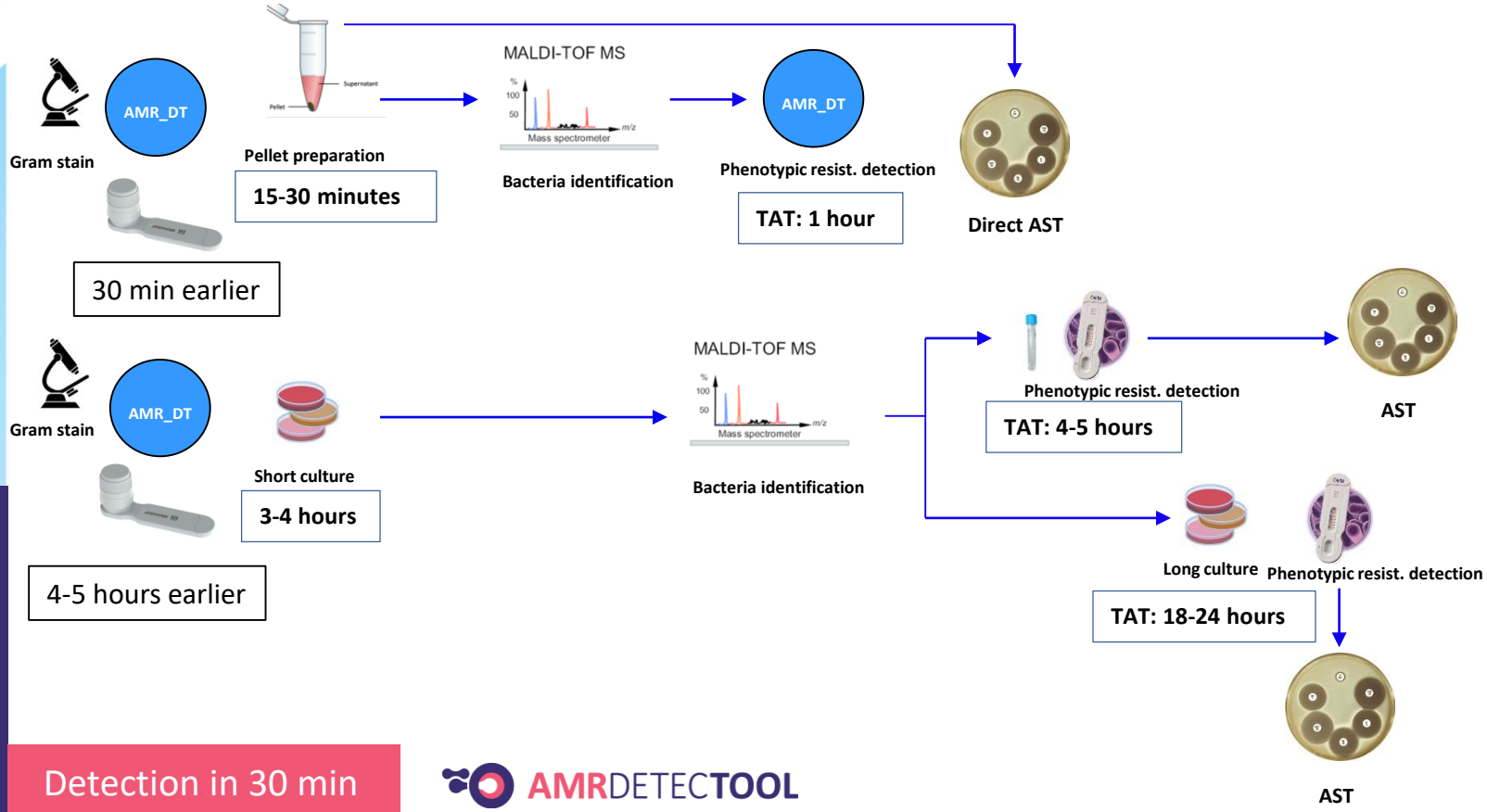
Fit in Blood

FIT IN WORKFLOWS



Detection in 30 min

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Urine

UTIs

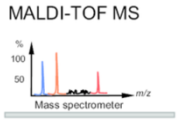
Dipstick

5-10 min

Gram stain

18-24 hours

If growth



Identification from colonies

AST

18-24 hours

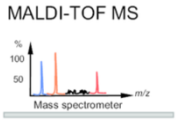
Urosepsis/ Pyelonephritis

Screening (Flow cytometer/ Dipstick/Gram)

5-10 min

If positive

Short/Long culture



Identification

Resistance test*

TAT: 4-5 hours

AST

18-24 hours

FIT IN WORKFLOWS

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Fit in Urine

UTIs

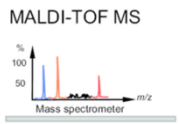
Dipstick

5-10 min

Gram stain

AMR_DT

If growth



Identification from colonies

AST

18-24 hours

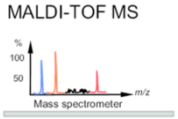
Urosepsis/ Pyelonephritis

Screening (Flow cytometer/ Dipstick/Gram)

AMR_DT

4-5 hours earlier

Short/Long culture



Identification

Resistance test*

TAT: 4-5 hours

AST

18-24 hours

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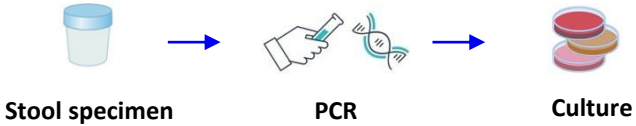
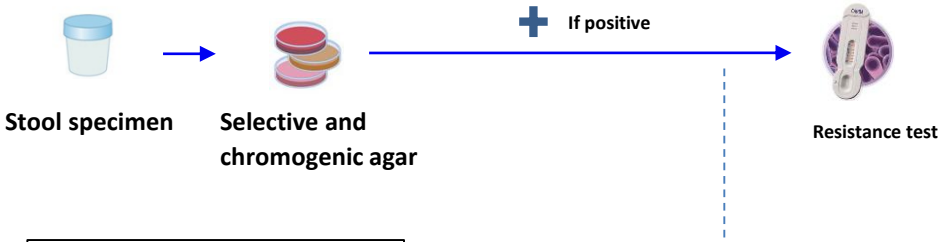
Rectal swabs

High risk patients hospitalized. Who?





Routine screening ICU

FIT IN WORKFLOWS

Detection in 30 min

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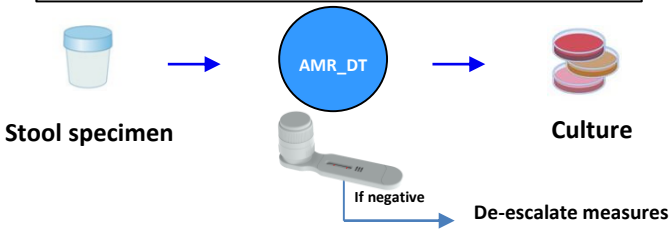
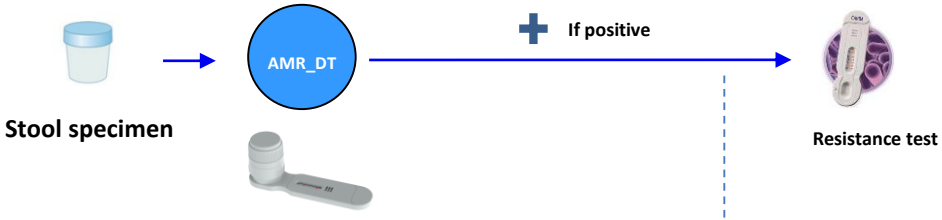
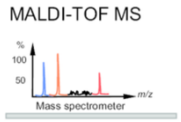
Fit Rectal swabs

High risk patients hospitalized. Who?





Routine screening ICU



Identification

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Detection in 30 min

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Prescriber Workflow

How AMR DetecTool fits in the lab working hours/organization?

Positive BC
12 (noon)

AMR Results
1 pm

De-escalate treatment?
(more responsibility)

Septic severe patients → broad-spectrum (GP, GN)

Escalate treatment

Technician gram, AMR DetecTool?

Positive BC
8 pm

AMR Results
9 pm

Adjust treatment

Clinician on duty?

Culture in plates

Next day

Colonies, LFIA strip?

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Number of tests per week

Sample	ESBLs #	CARBA #	Total per week
Blood	13	10	23
Urine	12	9	21
Rectal swabs	62	52	114
Total	87	71	**158**

FIT IN WORKFLOWS

Rectal swabs bigger market, but challenging:

- Might not be in a rush (except high-risk patients screened at arrival)
- Price of chromogenic agar (5 Eur)

Maximum price

Gabor granger pricing study method, based on 9 participating hospitals.

Average maximum amount willing to pay for AMR DetecTool = **13,30 Eur**

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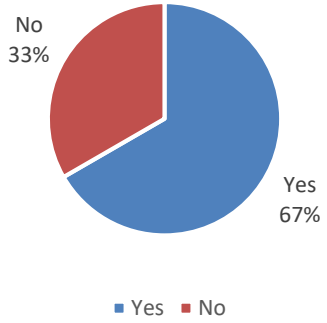
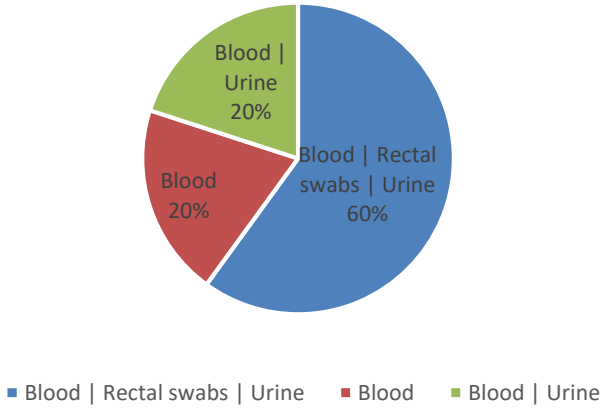
VAN A/B

Would you be interested in Van A/B tests?



For which samples would you use it?



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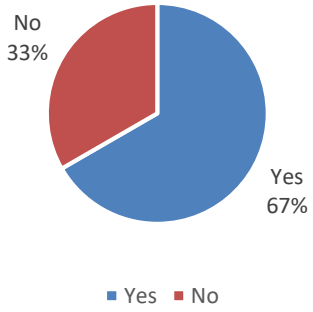
OXA-23

Would you be interested in OXA-23 tests?



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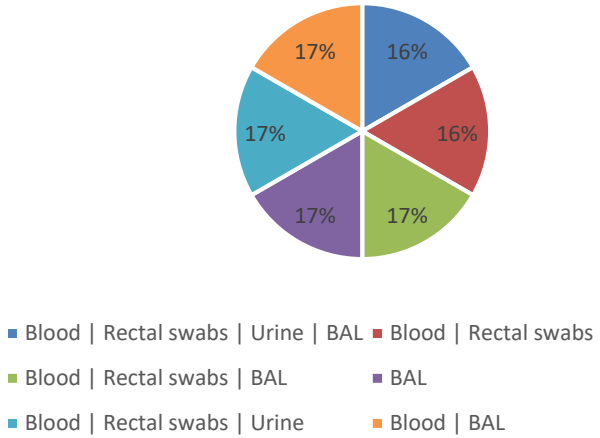

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Use cases

Main added value = speed + cost (specially PCR)

Fast result needed:

- Septic patients, ICU
  - Urosepsis
- High risk patients hospitalized
- Outbreak
- **Other settings? POC? DTW**

- **Economic study:** It looks like there is a high economic value, literature.

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THANK YOU
FOR YOUR ATTENTION!

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eit Health
EIT Health is supported by the EIT, a body of the European Union