

The patient is in the centre: integrated management of results with WASPLab™ System

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Background

In the last decade automation introduced innovation in the bacteriology laboratories since plates can be automatically streaked, incubated and growth digitally recorded and evaluated.

Aim of the study

In this study, we present an additional feature introduced in our laboratory through WASPLab™ (Copan, Italy) that consists in the contextual evaluation and interpretation of all the patient specimens by a single microbiologist. Possibility of working by patient rather than material: **"precision clinical microbiology"**. We present two clinical cases optimally managed employing this strategy:

- ICU patient
- General Medicine patient

Materials/Methods

The first case was represented by a patient admitted in ICU after abdominal surgery: a rectal swab (RS), nasal swab (NS), Bronchial Aspirate (BAS) and Blood Cultures (BCs) were collected. The second patient was admitted to general medicine for heart failure: a rectal swab, a urine and BC samples were ordered. All the samples were processed on WASP® and WASPLab™ automation.

Results

At day 1, microbiologists simultaneously evaluated the bacterial growth on agar plates for all samples incubated in WASPLab™. For both patients, the plates interpretation suggested a *K. pneumoniae* Carba-R rectal colonization and the Gram stain from positive BC indicated Gram negative bacilli. For the first patient the nasal swab reported *P. aeruginosa*, BAS indicated KES, the second patient urine was positive for KES. Since the Carba-R colonization status, a molecular test was immediately and properly ordered to define if these pathogens were the cause of the systemic infection. In the first patient, a *K. pneumoniae* KPC was confirmed and notified two days earlier than the previous routine procedure based on single material analysis approach. In the second case the aetiology was identified as multi-drug sensitive *E. aerogenes* (Figures 1 & 2).

Conclusion

In our context, the possibility for a clinical microbiologist to analyse all samples for each patient is consistent with a powerful overall vision and integrated management of results. This strategy could be named **"precision clinical microbiology"** because offers an additional value in complexes cases and encourages the construction.

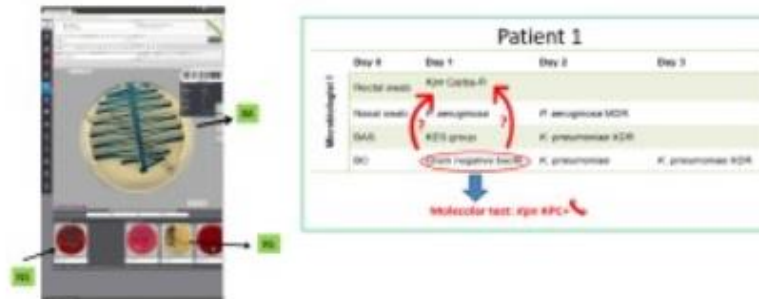
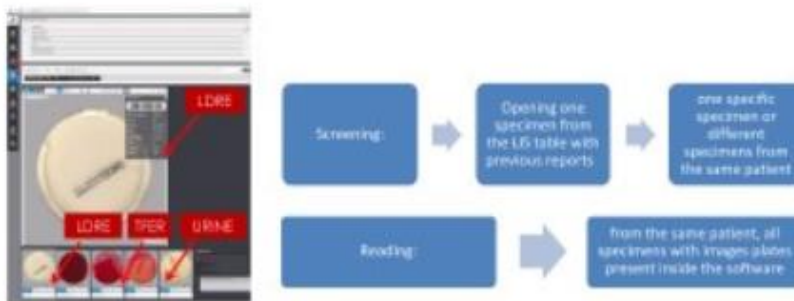


Fig. 1 Diagnosis for ICU patient

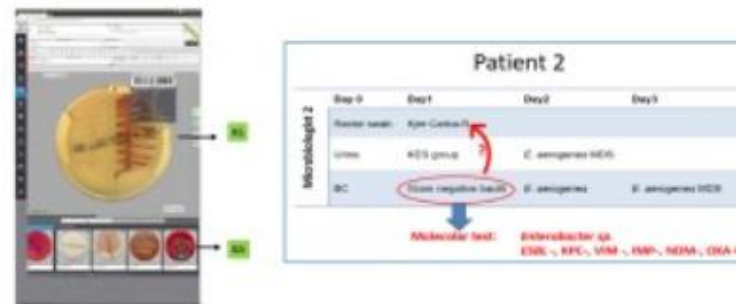


Fig.2 Diagnosis for General Medicine patient

BENEFITS OF PRECISION CLINICAL MICROBIOLOGY

- The clinical microbiologist manages all the samples of each patient
- Overall vision and integrated management of results
- Promotes strong partnerships (microbiological-clinical)
- Promotes the sharing of health data
- Added value for complex cases
- Enhanced the clinical microbiologist role

