Case Background

| Gender | female |
| Age    | 69     |
| Sample type | Aspirate |
| Hospitalization | Intensive Care Unit |

Medical Background

A 69-year old woman transferred from another hospital was assessed in the intensive care unit on 13 August 2012 with the diagnostic of severe myasthenia and community acquired pneumonia. She suffered from arterial hypertension, hiatal hernia, chronic diarrhea for polyps. She had been intubated from two week in the other hospital. The empiric antibiotic therapy before her transfer was amoxicillin/clavulanate that was change for positive blood cultures for *Klebsiella* and positive bronchial aspirate for *Escherichia coli*. Physical examination at admission to the ICU rindicated that the patients present septic shock.

Her initial WBC count was $11.2 \times 10^9$ cells/L, and she had an absolute neutrophil count of $10.3 \times 10^9$ cells/L, elevated values of C-reactive protein $10$ md/dL and low platelet count $71 \times 10^9$ cells/L. At the time point of specimen collection the patient received intravenous treatment with ceftttaxone.

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Medical Background continued

The Unyvero™ Pneumonia Application was performed the same day as specimen collection, the results was positive for *Enterobacter* sp., *Escherichia coli* and *Serratia marcescens*. Detected resistance determinants: *tem*, *dha*, and *ermB*. This result was confirmed only by microbiology culture of two different samples, however, the final microbiology results was available 3 days after the Unyvero™ results. Due to increasing infection parameters, the antibiotic treatment was change for broadspectrum (meropenem plus amikacin) the day after specimen collection on empiric basis since the Unyvero™ results was not communicated to the physician during this clinical trial. The extended antibiotic therapy regime resulted in decreasing infection parameters.

After 12 days of invasive mechanical ventilation she was tracheostomized. After 10 days of antibiotic treatment with meropenem and 14 days of amikacin the patient was moved to the ward and continues admitted.

Chest X-ray
massive infiltrates and myasthenia gravis

Symptoms
arterial hypertension, hiatal hernia, chronic diarrhoea, ventilation

Laboratory
CRP = 10 mg/dL

Gram-Stain

- Bronchial aspirate: Gram-negative bacillus
- Blood culture: Gram-negative bacillus
Results

Aspirate
Enterobacter sp.
Escherichia coli
Serratia marcescens

Blood Culture
NA

Aspirate
Enterobacter aerogenes

Blood culture
Serratia marcescens

Gram-negative
Penicillin
3rd Gen Cephalosporin

Gram-positive
Lincosamide

Enterobacter	Serratia

Penicillin
Piperac/Tazobactam	R	S

3rd Gen Cephalosporin
Ceftriaxone	R	S

Aminoglycoside
Gentamycine	S	S
Amikacin	S

Quinolone
Ciprofloxacin	S	S

Sulfonamide
Cotrimoxazol	S	S

Carbapenems
Ertapeneme	R	S
Imipenem	S	S
Meropenem	S	S
ß-Lactamases	+
Conclusion

This case report demonstrates the short time to result (~ 5 h) of the Unyvero™ System. The results of the Unyvero™ Pneumonia Cartridge were consistent with the results obtained by microbiology culture. The Unyvero™ result was available 5 days before the final microbiology report. Interestingly, Unyvero™ identified the mixed infection much earlier and therefore would have enabled a better patient management.