We report about our 40-year old patient who received an orthotopic heart transplantation (HTX) due to dilatative cardiomyopathy in 2002. In May 2012 he was admitted to our transplantation unit due to respiratory insufficiency and impaired renal function. X-ray of the chest revealed pulmonary infiltrates in both sides of the lung. Due to his immunosuppression he was put on a broad empiric antiinfective therapy (piperacillin/tazobactam; linezolid; cotrimoxazole, gancyclovir), also covering Pneumocystis jirovecii (PCP) and cytomegalovirus (CMV), respectively. A bronchoalveolar lavage (BAL) was performed for microbiology and molecular diagnostic purposes. Impaired respiratory and renal function required intubation and dialysis.
Medical Background continued

In microbiology, the liquid enrichment culture turned positive after 5 days incubation, the result was finalized 2 days later with a methicillin-sensitive *Staphylococcus aureus*. All primary inoculated culture plates remained negative. The Unyvero™ Pneumonia Application was performed the day after specimen collection. Although reported as negative, the Unyvero™ test showed a positive signal for *Staphylococcus aureus* below the current threshold settings. The course of our patient was rather complicated showing critical illness neuropathy, drug-induced pancytopenia, pancreatitis, as well as renal and respiratory insufficiency, requiring extracorporeal membrane oxygenation (ECMO). Improving slowly during the next two months the patient could be transferred to the regular transplantation ward.

Chest X-ray showing diffuse pulmonary infiltrates in both sides of the lung taken at the time point of the patient admission to the transplant intensive care unit.

Symptoms
respiratory insufficiency; renal failure; intubation; dialysis

Laboratory
CRP = 6.5 mg/dL
PCT = 0.5 ng/mL
Leucocytes = 12.6 Giga/l

Gram-Stain

Leukocytes +
Epithelial cells ++
Results

**Unyvero™**

**BAL**

*Staphylococcus aureus* (under threshold)

**Resistance**  
none

**Culture**

**BAL**

*Staphylococcus aureus* (after enrichment)

**Resistance**  
none

Timeline

Day 1 2 3 4 5 6 7

**Unyvero™ Result**

**Final Microbiology Result**

**Gram-Stain**
Conclusion

Although reported as negative due to the current threshold settings, the Unyvero™ Pneumonia Cartridge gave a clear signal for *Staphylococcus aureus*, which is in complete accordance with the microbiology culture result yielding a *Staphylococcus aureus* after enrichment. Gaining more experience after completion of a multicenter clinical trial and analyzing up to 1000 patient samples, an adaption of the threshold setting could allow the Unyvero™ System to have the same sensitivity as microbiology enrichment cultures – and this in just 5 hours compared to one week.