Introduction:
In septic patients, the early use of appropriate empiric antibiotic therapy reduces morbidity and mortality. De-escalation refers to narrowing the broad-spectrum antibiotics once the pathogen and sensitivities are known. T2 Magnetic Resonance (T2MR) is a novel method of detecting ESKAPE pathogens. We aim at investigating if using T2MR technology can expedite de-escalation of broad spectrum antibiotics.

Methods:
This is a prospective observational study conducted in our 35-bed university ICU. Inclusion criteria were critically ill patients age>18 y.o., with newly diagnosed sepsis and clinical suspicion of ESKAPE bloodstream infection. A sample for T2MR and a blood culture (BC) sample were collected simultaneously from the patients enrolled. The T2MR Bacteria panel test was run according to the manufacturer’s guidelines and the BCs were processed according to the hospital standard procedures. We recorded clinical data and administered antibiotics.

Results:
26 patients were included in the study. Mean time to culture positivity was 84 hours while mean time to T2MR result was 3.5 hours. In 20 patients the results of T2MR were in concordance with the BCs. In the remaining 6 cases, the BCs were negative while the T2 MR detected one or more ESKAPE pathogens. There were no false negative results. De-escalation in at least one drug was applied to 8 patients (30.8%). No escalation was applied to 15 patients (57.7%) and antibiotic escalation in 3 (11.5%).

Conclusion:
T2MR provides a quicker detection time that could shorten the time to targeted therapy. In our population this corresponded to early (within 6-12h) antibiotic de-escalation in approximately 1/3 of the included patients.