

O126

Abstract (oral session)

Duration of colonisation with antimicrobial-resistant bacteria after ICU discharge

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Objectives: Readmission of patients colonized with antimicrobial-resistant bacteria (AMRB) is important in the nosocomial dynamics of AMRB. We assessed the duration of colonization after discharge from the intensive care unit (ICU) with antimicrobial-resistant Gram-negative bacteria (ARGNB), methicillin-resistant *Staphylococcus aureus* (MRSA), and vancomycin-resistant enterococci (VRE). **Methods:** We conducted a cross-sectional study with data derived from a cluster-randomized trial in 13 ICUs in 8 European countries (2008-2011). The trial consisted of a 6-month baseline period, followed by implementation of hand hygiene improvement and chlorhexidine body washing (month 7 to 26) and addition of 'rapid screening on admission' for carriage with ARGNB, MRSA, or VRE (month 13 to 26). All patients were screened on admission and twice weekly for ARGNB, VRE, and MRSA in all study periods. For the current analysis, all patients colonized with ARGNB, MRSA, or VRE and a readmission to the same ICU were included. When colonized, colonization was assumed to remain until discharge. The time between discharge and readmission was calculated and the colonization status at readmission was assessed. We assumed admission is non-informative with regard to colonization status and used a maximum likelihood analysis to calculate the survival function, taking censoring into account. **Results:** 145 unique patients colonized with AMRB had at least one readmission. When analyzing all AMRB together, 162 episodes of colonization were recorded, including episodes of colonization with 2 or more organisms. When split up by type of bacteria we found 107 episodes of ARGNB colonization (further divided into 42 for *Escherichia coli* [*E. coli*], 79 for *Klebsiella*, *Enterobacter*, *Serratia*, or *Citrobacter* spp. [KESC], and 8 for *Proteus*, *Providencia*, and *Morganella* spp. [PPM]), 62 for MRSA, and 33 for VRE. Median times until decolonization were 1.2 months for all bacteria together, 1.5 months for ARGNB (less than one month for *E. coli*, less than one month for KESC, and not assessable for PPM), one month for MRSA, and less than one month for VRE. Duration of colonization was statistically significantly longer for KESC compared to *E. coli*. **Conclusion:** For all bacterial species, 50% of the patients had lost colonization when readmitted two or more months after the previous ICU admission. Therefore, interventions targeted at recently readmitted patients, e.g. preventive isolation, may be most effective.

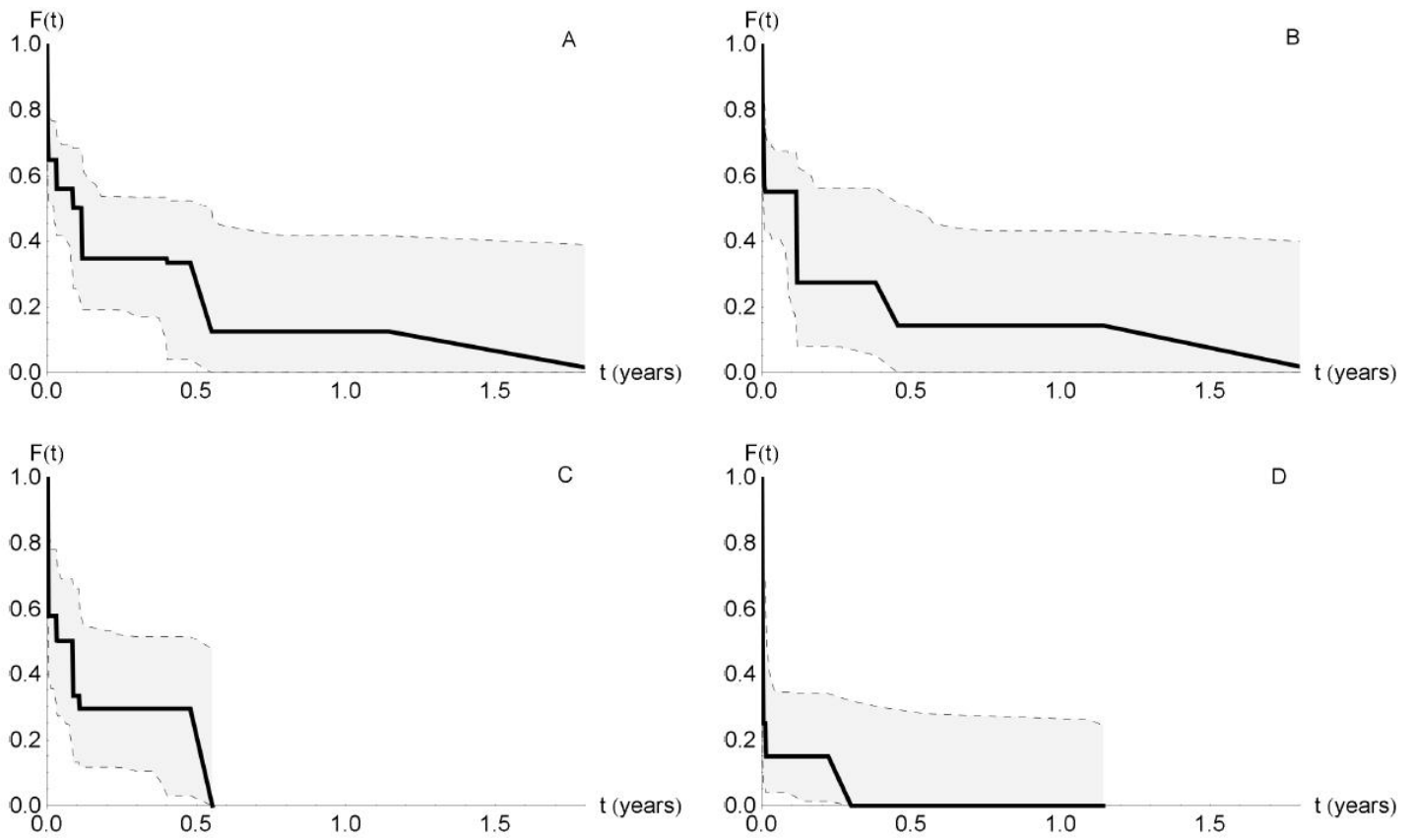


Figure 1. Survival functions and 95% confidence intervals of decolonization of A) all bacteria, B) ARGNB, C) MRSA, and D) VRE.