**E061**

**2-hour Educational Workshop**

**ESCMID guideline for the diagnosis and treatment of biofilm infections**

## Treatment of biofilm infections

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Implants are highly susceptible to infection. They are not only at risk for infection during the perioperative period, but remain susceptible to haematogenous seeding during their entire life-time. Traditionally, implant-associated infections were treated by removal of the biofilm-coated device. During the last 2 decades, novel concepts have been evaluated. In patients with acute infection the implant can be retained, provided that a biofilm-active antibiotic is used. Patients qualifying for implant retention are those with acute haematogenous PJI (<3 weeks of duration of symptoms) and those with early postinterventional PJI (during the 1st postoperative month). In contrast, patients with chronic PJI (≥3 weeks of duration of symptoms) have a low chance to be cured with implant retention. Cure by the first treatment attempt is crucial, because with each treatment failure, tissue damage and functional integrity is worse. Therefore, early referral to specialized centers is advised. Cure requires a combination of both, an appropriate surgical procedure and long-term antimicrobial therapy. We propose a rational treatment algorithm which allows choosing the optimal surgical strategy for each patient. Each surgical treatment option should be combined with a prolonged antibiotic treatment, preferably with an agent acting on slow-growing and adhering microorganisms. This requirement is fulfilled by rifampicin in staphylococcal and fluroquinolone in gramnegative infections. The excellent activity of rifampicin on implant-adhering microorganisms has been shown in vitro, in animal models, and in several clinical studies. In order to avoid emergence of resistance, rifampin must always be combined with another agent. Traditionally, fluoroquinolones are excellent combination partners. Following the novel treatment concepts, using rifampicin-combinations against staphylococci or a fluoroquinolone against gramnegative bacilli and choosing the optimal surgical procedure, the chance for eradication of orthopaedic implant-associated infection is 80-90%.