The treatment of prosthetic joint infection (PJI) is truly challenging. Patients with infected arthroplasty face physical and psychosocial problems. Furthermore, treatment costs represent a tremendous socioeconomic burden. This article presents an overview of the preoperative diagnosis of PJI and one- or two-stage endoprosthetic exchange options. A selective literature search was performed focusing on diagnostics and innovative surgical treatment concepts in PJI. The identification of the underlying pathogen is still the main focus in the diagnosis of PJI. State-of-the-art therapy for PJI with mature biofilm consists of implant removal with one- or two-stage exchange arthroplasty. One-stage exchange offers lower morbidity and improved functional outcome, whereas a two-stage procedure is, according to current knowledge, more favourable in terms of infection control. The novel short-term two-stage exchange regimen combines the advantages of both possibilities. Prosthetic joint infection represents a significant challenge for the orthopaedic surgeon. Novel treatment options can help to improve outcome and lower the costs to the health care system.