INTRODUCTION:
Infections is a disaster after primary total knee arthroplasty (TKA), leading to significant complications. There are many risk factors such as immune-related diseases (rheumatoid arthritis, systemic lupus erythematosus, etc.), diabetes mellitus (DM), revision surgery, cutaneous lesion, haematogenous dissemination. The management are depend on the characteristics of symptoms and signs. So early diagnosis and proper treatment are very important. As for a successful outcome, one-stage or two-stage treatment would be controversial on TKA infections. It could be debated. Thus, patients should be considered carefully. Further management may be needed too, such as long-term antibiotic suppression, and monitoring the infection. Some authors reported successful outcomes by one-stage procedures. However, the majority of TKA infections were treated with two-stage procedures. It was reported that two-stage method had a significant cure rate. In our study, we investigated the patients of infected TKAs, who were treated in Prince of Wales Hospital of Hong Kong (PWH, HK). This study was to find out the mid- to long-term outcome of the management of infected total knee replacement and its influential factors. In the end, it was important to figure out the facilitative role of one-stage method and two-stage method by our own study and meta-analysis of the reported series.

METHODS:
1030 total knee arthroplastys (TKAs) of primary or revision were followed up. These cases were treated in Prince of Wales Hospital of Hong Kong from 1984 to March 2006. The survival analysis of this group was carried out. The influential factors of its outcome were statistically analyzed with multiple regression analysis in the end. Especially, the facilitative role of one-stage method and two-stage method was investigated and observed by our own study and meta-analysis of the reported series.

RESULTS:
Totally 31 cases were complicated by infection, including 19 left knees and 12 right knees. The average of age was 63 years old, ranged from 39 to 81. There were 6 Males and 25 Females. 27 infected TKAs were found from 992 primary TKAs, and the morbidity was about 2.7%. 0.5% of these patients belonged to acute infection, and the other 2.2% belonged to delayed infection. 16% of them was acute infection, and 45% was late chronic infection. 39% was caused by haematogenous dissemination. 4 infected TKAs were found from 38 revisions of TKAs, and the morbidity was about 10%. The results of multiple regression analysis showed that 61% of the infected TKAs had predisposing factors, such as haematogenous dissemination, rheumatic arthritis (RA), systemic lupus erythematosus (SLE), diabetes mellitus (DM) and others. The most common manifestation was pain in the involved knee. It took the patients an average of 2.6 months before presentation, ranged from 1 day to 6 months. Sensitivity and specificity analysis indicated that the combination of erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) might be the most useful screening investigation. Referred to the survival analysis of our own series and the meta-analysis of other reported series, open debridement with enough, long dosage of antibiotics was the useful management followed by 2 stages re-implantation.

DISCUSSION:
Patients with high-risk factors should be carefully treated and followed up. The infection of TKA should be early recognized. There was a higher chance to retain the prosthesis if the interval between the onset of symptom and debridement was shorter than 4 weeks. Open debridement with cement spacer was the useful management followed by two stages re-implantation. But it need a large prospective cohort study for the choosing of one stage or two stage, and the influential factors of the outcome, so as to have more strong evidences.

Keywords: Arthroplasty; Knee; Orthopaedic infection