Introduction: Several small series have described high rates of infection with VEPTR surgery.

Methods: A retrospective query was done on a prospectively collected database for patients implanted with VEPTR from 2007-2012 at 8 sites. Patients were required to have a minimum of 4 surgical procedures. Out of the 213 patients that met these criteria, 55 infections requiring operative treatment in 38 patients occurred with average follow up of 4.1 years (range 1.7-6.3). Data collected included C-EOS diagnosis, major Cobb angle, construct type, clinical symptoms, and microbiology. The distribution of infection rates across all the study sites was compared. The exact p-value was estimated by Monte Carlo simulation (SAS 9.3).

Results: 18% (38/213) of patients implanted with VEPTR developed infection requiring operative debridement. There was significantly different infection rates among the sites, ranging from 2.9% to 42.9% (p=0.029). The average time to infection was 70 days (range 8-236) after infecting procedure. The majority of infections were due to gram positive bacteria (80%, 44/55), the most prevalent being Methicillin-sensitive Staphylococcus aureus (45%, 25/55). There were 20 patients (53%, 20/38) with either partial or complete implant removal to resolve infection however only 3/38 (8%) of these resulted in abandonment of VEPTR treatment. There was no difference in infection rate across the primary C-EOS diagnosis categories (p=0.21) or based on ASA score (p=0.53). After controlling for study site, the odds ratio of an infection following an implant procedure versus an expansion was 2.8 (p=0.002). There was no difference in the odds ratio of an infection between the other procedure types (implant, expansion, exchange/revision).
Conclusions: Since 2007 at the 8 study sites, 18% of patients with VEPTR implanted developed infection. There were significant differences in infection rates between sites. The variability in infection rates from site to site, indicates a need for guided efforts to standardize best practices for infection control in VEPTR surgery.