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Effectiveness of decontamination measures in the prevention of surgical site infection in spinal surgery

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Background: Surgical site infections (SSI) after spinal surgery are a major concern with a 2 to 10 % estimated incidence. Numerous studies have showed the efficacy of staphylococcus decontamination measures in the prevention of SSI. The goal of the study was to evaluate the role of decontaminations measures in the prevention of spinal SSI.

Material/methods: We conduct two observational studies. First in Beaujon hospital between January 2008 to December 2013 with progressive implement of decontamination measure (in September 2011

for elective surgery and October 2012 for all patients. The second study was conducted in Georges Pompidou European Hospital (GPEH) between September 2014 and September 2015 with implementations of measures in March 2015. Measures consisted in 5 days of nasal mupirocin application with chlorhexidine cutaneous application before surgery. Patients were excluded if they were currently treated for any infection and if they had a past history of spinal infection. Diagnostic of SSI was affirmed by either clinical or biological signs of infection and at least one positive operative biopsy with a pathogenic germ. Homogeneity of the two cohorts over time was tested by comparing age, gender, and type of surgical treatment performed before and after implementation of prevention measures. We performed a time-series analysis (interrupted time series) in the first center and a logistical model in the second to evaluate the impact on incidence of SSI.

Results: We included 4613 in Beaujon with 272 SSI and 701 patients in GPEH with 39 SSI. The characteristics of the population in terms of age, comorbidities, and surgical gestures performed were stable over time. Incidence of SSI decreased significantly from 7,3% to 4,5% ($p=0,003$) then to 3% ($p<0,0001$) in Beaujon, and from 8,27% to 3,9% ($OR=2.2$, $p=0,017$) in GPEH.

Conclusions: Decontamination measures are effective in the prevention of SSI in spinal surgery.

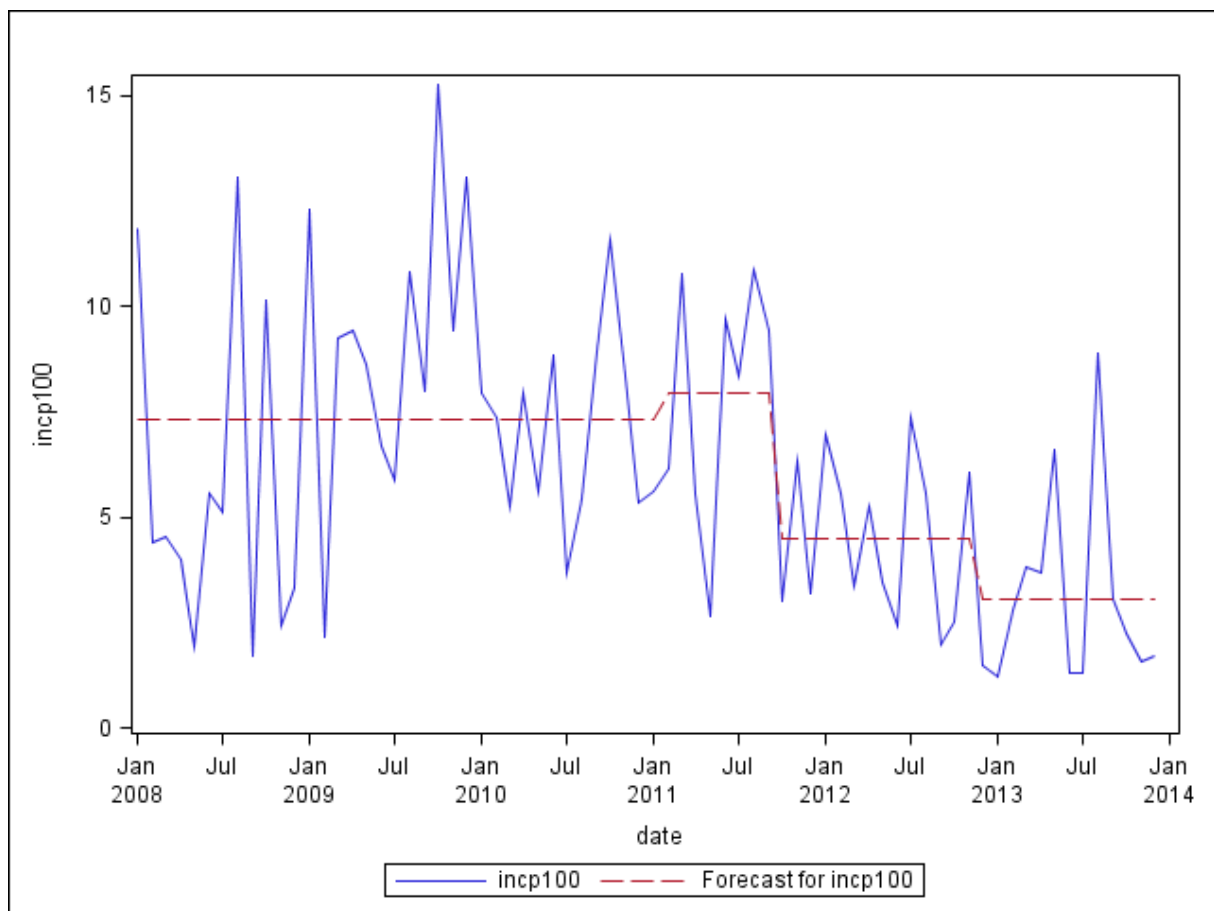


Figure 1 Modification of incidence of Spinal surgical site infections in Beaujon Hospital over time