

## 12 Best Papers

### [O126] OPERATING ROOM VENTILATION AND RISK OF REVISION DUE TO INFECTION AFTER PRIMARY TOTAL HIP ARTHROPLASTY

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**Aim:** The aim of this study was to validate the information on operating room ventilation reported to the Norwegian Arthroplasty Register (NAR) and to assess the influence of this ventilation on the risk of revision due to infection after primary total hip arthroplasty (THA).

**Method:** Current and previous ventilation systems were evaluated together with the hospitals head engineer in 40 orthopaedic hospitals. The ventilation system of each operating room was assessed and confirmed as either conventional ventilation, vertical laminar airflow (LAF) or horizontal LAF. We then identified cases of first revision due to deep infection after primary THA and the type of ventilation system reported to the NAR in the period 1987-2014. The association between revision due to infection and operating room ventilation was estimated by relative risks (RR) in a Cox regression model.

**Results:** 103370 primary THAs and 971 (0.9%) first revisions due to deep infection were reported. 51% of the primary THAs were performed in a room with vertical LAF, 44% in a room with conventional ventilation and 5% in a room with horizontal LAF. There was a mean misreporting rate of approximately 12%.

There was similar risk of revision due to infection after THA performed in operating rooms with vertical laminar air flow compared to conventional ventilation (RR=0.95, 95 % CI: 0.8–1.1) and an increased risk of revision due to infection after THA performed in horizontal LAF conditions compared to conventionally ventilated conditions (RR=1.3, 95 % CI: 1.0–1.7).

**Conclusions:** Surgeons are not fully aware of what kind of ventilation there is in the operating room. This study may indicate that vertical LAF is not superior to conventional ventilation concerning reduction of THA infection, and therefore does not justify any increased installation costs. Also, horizontal LAF systems appear to be inferior to other ventilation systems.