## Executive Summary

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### Title
**Periprosthetic joint infection in hip arthroplasty: is there an association between infection and bearing surface type**

### Authors
Pitto RP., Sedel L.

### Journal

### Level of Evidence
Level III. Therapeutic study.

### Summary
Pitto and Sedel aimed to assess whether the type of bearing surface (CoC, CoP, MoP, MoM) is associated with differences in risk of revision for early (<6 months) or late (>6 months) deep infection by using the national arthroplasty registry of New Zealand. In all they included 84,894 primary THA with a median observation period of 9 years. Included were only patients with degenerative joint disease without previous surgeries or trauma. There were 54,409 MoP, 16,503 CoP, 9,051 CoC and 4,931 MoM bearings. The following risk factors were included in the multivariate analysis: age, gender, operating room type, use of body exhaust suits, fixation mode, and surgeon volume. During the first 6 months 0.07% CoC bearings, 0.09% CoP bearings, 0.15% MoP, and 0.14% MoM bearings were revised for infection. After controlling for certain confounding variables (see above), the authors did not find significant (<0.05) differences in risk of revision for deep infection within the first 6 months after surgery for the various bearing surfaces. The early rate of infection did not include surgical procedure for PJI that did not require exchange of components. The overall revision rate for PJI of all bearings was 0.5% over the entire observation period (median 9 years). When the entire observation period was considered, CoC bearings were associated with a statistically significant lower risk of revision for infection (p=0.013) compared to CoP (HR, 1.3; CI, 0.78-2.18), MoP (HR, 2.21; CI, 1.23-3.65) and MoM (HR,1.75; CI,1.07-2.86) bearings. Kaplan-Meier survival analysis after 10 years showed no revisions for PJI in the CoC group but a constantly increasing revision rate for the other bearings.

### Key Research Findings

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<tr>
<th>Key Research Findings</th>
<th>Details</th>
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<td>There was no difference in the rate of early (&lt;6 months) risk of revision for infection between the bearing surfaces</td>
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<tr>
<td><strong>CoC</strong> Bearings were associated with a lower risk of revision for infection compared to CoP, MoP and MoM, when the whole observation period was considered</td>
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<td>Study results have to be considered preliminary due to the exclusion of several confounding factors</td>
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### Study limitations
Many patient factors known to influence infection risk, such as comorbidities, malnutrition, smoking, alcohol consumption or BMI could not be included in the multivariate analysis

Early rate of infection did not include surgical procedure for PJI that did not require exchange of components

Retrospective study

No information of causative microorganism

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*The investigators did not stratify the analysis according to polyethylene quality.*