Article:
Paumier, T.M., Lockhart, P.B., Springer, B. et al. (1 more author) (2025) What dentists need to know about new guidelines for the treatment of patients with prosthetic joints. Journal of the American Dental Association. ISSN 0002-8177

https://doi.org/10.1016/j.adaj.2025.05.013

What dentists need to know about new guidelines for the management of patients with prosthetic joints

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Conflict of Interest Statement:

Thomas Paumier – has no financial, economic or professional interest that may influence positions presented in the article.

Peter Lockhart – has no financial, economic or professional interest that may influence positions presented in the article.

Title Page (With Author Details)

Bryan Springer – has no financial, economic or professional interest that may influence positions presented in the article.

Martin Thornhill – has no financial, economic or professional interests to report that may influence positions presented in the article.

Funding Statement:

The authors received no grant or other funding for this article.

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Recently the American Academy of Orthopedic Surgeons (AAOS) and American Association of Hip and Knee Surgeons (AAHKS) released a Clinical Practice Guideline, "The prevention of total hip and knee arthroplasty periprosthetic joint infection in patients undergoing dental procedures" (The AAOS/AAHKS Guideline).[1] The scope of the guideline included (i) antibiotic prophylaxis (AP) use before dental procedures; (ii) dental screening prior to hip and knee arthroplasty; (iii) use of an oral antiseptic rinse before dental procedures; (iv) the timing of arthroplasty surgery following any dental procedures, and (v) the timing of any dental procedures following total joint arthroplasty. This guidance is therefore highly pertinent to dentists, but many may be unaware of these new recommendations. We therefore summarize and comment on them below.

The guideline gives a series of statements related to these topics but provides no direct clinical recommendations. Taking each point in turn:

(i) Antibiotic prophylaxis (AP) use before dental procedures

The AAOS/AAHKS guidance is now in agreement with the ADA 2015 Clinical Practice Guideline that there is no association between invasive dental procedures and late prosthetic joint infections (LPJIs) and that antibiotic prophylaxis is of no benefit in preventing LPJIs.[2] The new

guideline states “Routine use of a systemic prophylactic antibiotic prior to a dental procedure in patients with a hip or knee replacement may not reduce the risk of a subsequent periprosthetic joint infection”.

The guideline acknowledges that for orthopedic surgeons who have routinely recommended AP may find it difficult to change their practice regardless of this new guideline. However, the advice for dentists and orthopaedists is clear - AP provides no significant benefit for patients with prosthetic joints. It doesn’t reduce their risk of developing PJI but may result in adverse drug reactions (e.g., C. difficile infection) and promote the development of antibiotic resistance.[3, 4]

(ii) Dental screening prior to hip or knee arthroplasty

The AAOS/AAHKS guideline acknowledges there is no evidence that dental screening or “clearance” prior to arthroplasty reduces the risk of prosthetic joint infections.

(iii) Use of an oral antiseptic rinse before dental procedures

The AAOS/AAHKS guideline acknowledges there is no evidence to support the use of an antiseptic oral rinse prior to invasive dental procedures.

There is, however, controversy regarding the final two consensus opinion recommendations.

(iv) The timing of arthroplasty surgery following a dental procedure

The AAOS/AAHKS guideline recommends delaying arthroplasty surgery for 1 week after scaling and root planing, and 3 weeks after an extraction, oral surgical procedure, or treatment of an acute dental infection, despite the lack of any supporting evidence for this recommendation. Multiple studies report that bacteremia from dental extractions, even in highly septic gingival and alveolar disease conditions, rarely lasts longer than an hour.[5]

(v) The timing of dental procedures following total joint arthroplasty

The area with the greatest impact on patients is the consensus-based opinion recommendation to delay any dental treatment, other than exams without probing, or the treatment of an acute dental infection for 3 months after joint replacement surgery. The premise to support this recommendation is that the newly placed joint has increased perfusion and blood flow and therefore may theoretically be more susceptible to infection from a bacteremia caused by an invasive dental procedure. However, there is no evidence to support this opinion.

Multiple prospective clinical studies have demonstrated that routine daily activities such as toothbrushing can create a bacteremia similar to that produced by invasive dental procedures, particularly in those with poor oral hygiene.[6] Considering the frequency of bacteremia from toothbrushing and the absence of an increased risk of PJI from this or invasive dental

procedures, it is illogical to recommend delaying dental care for 3 months without any evidence of benefit.

Delaying dental care could lead to adverse patient outcomes including acute dental infections and the need for more invasive procedures. The vast majority of PJIs that occur in the 3-months immediately after joint replacement are caused by Staphylococci, mainly from the skin, yet there is no recommendation to delay dermatologic procedures following joint replacement. Enterococcal related PJIs also occur at greater rates than oral viridans group strep (OVGS) PJIs (which likely account for less than 5% of all PJIs),[7, 8] yet there is no recommendation to delay endoscopies or colonoscopies. It is illogical, therefore, to single out dental procedures for delay.

Many other countries including Australia, Brazil, Canada, Denmark, France, Norway, Portugal, and the United Kingdom also do not recommend AP for patients with prosthetic joints undergoing invasive dental procedures, nor do they recommend a delay in dental care after arthroplasty. The incidence of LPJI or early hematogenous related OVGS PJI is no higher in those countries than in the United States.[9]

We fully appreciate the need to minimize the risk of prosthetic joint infections, but there should be credible evidence for recommending a delay in treatment of other healthcare needs. Patients and providers should be confident that the data suggests receiving dental care in the first 3 months following arthroplasty is highly unlikely to increase the risk of developing a PJI. Dentists should feel comfortable discussing this with patients who seek non-emergency care in the first 3

months post-arthroplasty if their surgeon advises a delay in treatment. The final decision to have treatment should be made, however, by the patient with informed consent and documented in the patient record. Patients should have timely treatment for preventive and emergent dental care as good oral health is the most important factor in reducing the risk of bacteremia from the oral cavity.

We applaud the AAOS and AAHKS for their new Guideline, and particularly their recognition that the use of AP for invasive dental procedures is unnecessary for patients with prosthetic joints. However, we hope that they will consider a revision of their final 2 opinion-based recommendations concerning the timing of arthroplasty surgery following a dental procedure and delaying dental procedures after joint replacement surgery, that lack evidence, seem illogical and could adversely affect patient care.

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