**Critically Appraised Topic (CAT)**

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| **Project Team:**  |
| **5A-3** |
| **Project Team Participants:**  |
| **Maisie Tolzmann, Kimberly Kaiser, Nadiya Choi, Greta Hevesi**  |
| **Clinical Question:** |
| **Which material is better for a longspan fixed partial denture, porcelain-fused to metal or all-ceramic?** |
| **PICO Format:** |
| **P:** |
| **Patients replacing multiple teeth with longspan fixed partial denture** |
| **I:** |
| **All-ceramic crowns** |
| **C:** |
| **Metal-ceramic crowns** |
| **O:** |
| **More successful outcome**  |
| **PICO Formatted Question:** |
| **In patients replacing mutlipel teeth with a longspan fixed partial denture, which material will make a more successful restoration, porcelain-fused to metal or all-ceramic?**  |
| **Clinical Bottom Line:** |
| **Metal-ceramic should be the first option when considering which material to use for a multiple-unit FDP restoration.**  |
| **Date(s) of Search:**  |
| **11/01/2020** |
| **Database(s) Used:** |
| **PubMed** |
| **Search Strategy/Keywords:** |
| **Located articles that focused on the strengths and weaknesses of all-ceramic verses porcelain-fused to metal; searched anterior verses posterior bridges; searched long-span verses single crown; what other factors contribute to material selection.**  |
| **MESH terms used:** |
| **Fixed Partial Denture (FPD), long-span FPD, all-ceramic, Zirconium, Dental Porcelain, Metal Ceramic Alloys, Dental Materials**  |
| **Article(s) Cited:** |
| * **Pjetursson, Bjarni Elvar, et al. “All-ceramic or metal-ceramic tooth-supported fixed dental prostheses (FDPs)? A systematic review of the survival and complication rates. Part II: Mutliple-unit FDPs.” *Dental Materials*, vol. 31, no. 6, 2015, pp. 624-639., doi:** [**https://doi.org/10.1016/j.dental.2015.02.013**](https://doi.org/10.1016/j.dental.2015.02.013)
* **Sailer I, Strasding M, Valente NA, Zwahlen M, Liu S, Pjetursson BE. “A systematic review of the survival and complication rates of zirconia-ceramic and metal-ceramic multiple-unit fixed dental prostheses.” *Clinical Oral Implants Research,* vol. 29, no. S16, 2018, pp. 184-198., doi: 10.1111/clr.13277**
* Sailer I, Balmer M, Hüsler J, Hämmerle CHF, Känel S, Thoma DS. 10-year randomized trial (RCT) of zirconia-ceramic and metal-ceramic fixed dental prostheses. J Dent. 2018 Sep;76:32-39. doi: 10.1016/j.jdent.2018.05.015. Epub 2018 May 25. PMID: 29807060
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| **Study Design(s):** |
| * **Systematic review of cohort study**
* **Systemaitc review and meta-analysis**
* **Randomized control trial (RCT)**
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| **Reason for Article Selection:** |
| **The studies addressed our PICO question and had high levels of evidence.**  |
| **Article(s) Synopsis:** |
| **All of these articles supported the conlclusion that metal-ceramic FDPs are top-choice treatmenet options for patients with edentulous areas looking to get multiple-unit FDP restorations.**  |
| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm) See <http://www.cebm.net/index.aspx?o=1025>[x]  **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)[x]  **1b** – Individual RCT[x]  **2a** – Systematic Review of Cohort Studies[ ]  **2b** – Individual Cohort Study[ ]  **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research[ ]  **4a** – Systematic Review of Case Control Studies[ ]  **4b** – Individual Case Control Study[ ]  **5** – Case Series, Case Reports[x]  **6** – Expert Opinion without explicit critical appraisal, Narrative Review[ ]  **7** – Animal Research[ ]  **8** – In Vitro Research |
| **Strength of Recommendation Taxonomy (SORT) For Guidelines and Systematic Reviews**See article **J Evid Base Dent Pract 2007;147-150**[x]  **A** – Consistent, good quality patient oriented evidence[ ]  **B** – Inconsistent or limited quality patient oriented evidence[ ]  **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |
| **Conclusion(s):** |
| **Metal-ceramic FDPs overall have higher survival rates and less complication rates such as chipping or framework fracture and are therefore considered the first choice material when placing a multiple-unit FDP restoration.**  |