**Critically Appraised Topic (CAT)**

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| **Project Team:** |
| **3A-2** |
| **Project Team Participants:** |
| **Grant Mickesh, Zachary Jacobs, Tina Copoulos, Sarah Doughty** |
| **Clinical Question:** |
| **In patients with an implant supported FPD. What is the relative success and failure rates of layered zirconia implant supported FPDs compared to porcelain fused to metal implant supported FPD?** |
| **PICO Format:** |
| **P:** |
| **Patients with implant supported FPDs** |
| **I:** |
| **Layered – zirconia FPDs** |
| **C:** |
| **Porcelain fused to metal FPDs** |
| **O:** |
| **Long term success** |
| **PICO Formatted Question:** |
| **In patients with an implant supported FPD. What is the relative success and failure rates of layered zirconia implant supported FPDs compared to porcelain fused to metal implant supported FPD?** |
| **Clinical Bottom Line:** |
| * **PFM Implant supported FPDs have a long track record of success and have been considered the gold standard for FPDs. However, with All-Ceramic materials like layered zirconia and monolithic zirconia becoming more common** * **Studies demonstrating its respective success and failure rates will become clearer with time.** * **Until more studies can conclusively show a positive or negative relationship compared to PFM FPDs. The current evidence supports using PFM in posterior implant supported FPDs** |
| **Date(s) of Search:** |
| **09/09/2020** |
| **Database(s) Used:** |
| **PubMed** |
| **Search Strategy/Keywords:** |
| **Dental implants, hardware complications, survival rates, zirconia, fixed partial denture, porcelain fused to metal, layered zirconia** |
| **MESH terms used:** |
| **Dental Prosthesis, Implant-Supported/adverse effects\***  **Denture, Partial, Fixed\* / adverse effects**  **Dental Restoration Failure**  **Zirconium**  **Metal Ceramic Alloys** |
| **Article(s) Cited:** |
| 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. *Clin Oral Implants Res*. 2018;29 Suppl 16:184-198. doi:10.1111/clr.13277  Shi, J‐Y,  Zhang, X‐M,  Qiao, S‐C,  Qian, S‐J,  Mo, J‐J,  Lai, H‐C.  Hardware complications and failure of three‐unit zirconia‐based and porcelain‐fused‐metal implant‐supported fixed dental prostheses: a retrospective cohort study with up to 8 years. *Clin. Oral Impl. Res.*  28,  2017,  571– 575. |
| **Study Design(s):** |
| **Systematic review, retrospective cohort** |
| **Reason for Article Selection:** |
| **Articles were selected for being high level evidence with respect to the relatively limited amount of studies done on layer zirconia FPD’s** |
| **Article(s) Synopsis:** |
| Click here to enter text. |
| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm)  See <http://www.cebm.net/index.aspx?o=1025>  **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)  **1b** – Individual RCT  **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  **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**  **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):** |
| **Selecting the optimal restorative materials is important in every case especially one involving so many restorations. Ultimately the current evidence points to the PFM FPD to be a trusted restorative material to select, but due to the limited studies on layered zirconia it is an unfair comparison with a smaller sample size. With more studies done in the future comparing the relative survival rates of PFM and Zirconia the true differences in materials will become more definitive.** |