Single Tooth Indirect Restorations (For Ohio Only)

Policy Number: CSDEN335OH.A
Effective Date: December 1, 2023

Instructions for Use

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Related Dental Policies
None

Application

This Dental Policy only applies to the state of Ohio. Any requests for services that are stated as unproven or services for which there is a coverage or quantity limit will be evaluated for medical necessity using Ohio Administrative Code 5160-1-01.

Coverage Rationale

Damaged teeth should be restored using procedures that remove the least amount of tooth structure necessary to restore normal function.

Crowns and Onlays

Crowns and Onlays are indicated for the following:

- Extensive caries or tooth fractures
- To replace large defective restorations
- Complete cusp fractures
- Endodontically treated teeth (unless only need to restore the access opening on an anterior tooth) that are asymptomatic with a good apical seal
- Symptomatic “cracked tooth syndrome” (not enamel craze lines)
- Full coverage restoration of a primary tooth without a permanent successor

Crowns and Onlays are not indicated for the following:

- If a more conservative means of restoration is acceptable
- If the buccal and lingual walls are intact
- If root resorption is present
- For teeth with untreated/uncontrolled periodontal disease or periapical pathology
- Unstable, active caries

- Poor oral hygiene
- Teeth that do not have a favorable Crown/root ratio

Inlays

In the published literature, Inlays have not been shown to have superior long-term clinical performance over direct restorations.

Definitions

Crown: An artificial replacement that restores missing tooth structure by surrounding the remaining coronal tooth structure or is placed on a dental implant. It is made of metal, ceramic or polymer materials or a combination of such materials. It is retained by luting cement or mechanical means. (ADA)

Inlay: An intracoronal dental restoration, made outside the oral cavity to conform to the prepared cavity, which restores some of the occlusal surface of a tooth, but does not restore any cusp tips. It is retained by luting cement. (ADA)

Onlay: A dental restoration made outside the oral cavity that covers one or more cusp tips and adjoining occlusal surfaces, but not the entire external surface. It is retained by luting cement. (ADA)

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this guideline does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CDT Code	Description
D2510	Inlay – metallic - one surface
D2520	Inlay – metallic - two surfaces
D2530	Inlay – metallic - three or more surfaces
D2542	Onlay – metallic-two surfaces
D2543	Onlay – metallic-three surfaces
D2544	Onlay – metallic-four or more surfaces
D2610	Inlay – porcelain/ceramic - one surface
D2620	Inlay – porcelain/ceramic - two surfaces
D2630	Inlay – porcelain/ceramic - three or more surfaces
D2642	Onlay – porcelain/ceramic - two surfaces
D2643	Onlay – porcelain/ceramic - three surfaces
D2644	Onlay – porcelain/ceramic - four or more surfaces
D2650	Inlay – resin-based composite - one surface
D2651	Inlay – resin-based composite - two surfaces
D2652	Inlay – resin-based composite - three or more surfaces
D2662	Onlay – resin-based composite - two surfaces
D2663	Onlay – resin-based composite - three surfaces
D2664	Onlay – resin-based composite - four or more surfaces
D2710	Crown, resin-based composite, indirect
D2712	Crown – 3/4 resin-based composite (indirect)

CDT Code	Description
D2720	Crown – resin with high noble metal
D2721	Crown – resin with predominantly base metal
D2722	Crown – resin with noble metal
D2740	Crown – porcelain/ceramic
D2750	Crown – porcelain fused to high noble metal
D2751	Crown – porcelain fused to predominantly base metal
D2752	Crown – porcelain fused to noble metal
D2753	Crown – porcelain fused to titanium and titanium alloys
D2780	Crown – 3/4 cast high noble metal
D2781	Crown – 3/4 cast predominantly base metal
D2782	Crown – 3/4 cast noble metal
D2783	Crown – 3/4 porcelain/ceramic
D2790	Crown – full cast high noble metal
D2791	Crown – full cast predominantly base metal
D2792	Crown – full cast noble metal
D2794	Crown – titanium
D2799	Interim crown – further treatment or completion of diagnosis necessary prior to final impression

Description of Services

Indirect restorations are tooth restorations that are fabricated outside the mouth. They are prepared on a replica of the prepared tooth in a dental laboratory or by using computer-aided design/computer-assisted manufacturing (CAD/CAM) either chairside or in the dental laboratory. Local anesthetic, impressions, tooth preparation, temporary restorations, fitting, cementation, adjustment and any liners or bases are generally considered inclusive to the procedure.

Clinical Evidence

Inlays

Rocha Gomez Torres et al. (2021) conducted a study comparing the clinical performance of large indirect restorations (IRs) with direct restorations (DRs) in permanent teeth for up to two years. Thirty subjects received two class II restorations, one fabricated from a precured composite block (Grandio Blocs, VOCO) for the indirect technique (IT) and the other with light-cured composite (GrandioSO, VOCO) for the direct technique (DT). For IT, the restoration was created using the computer-aided design and computer-aided manufacturer (CAD/CAM) system. For DT, the material was applied light-cured by using a layering technique. All restorations were evaluated by using the World Dental Federation criteria. The results showed in the 23 patients that attended the 2 year follow up there were no significant differences between the techniques for most parameters analyzed ($p > 0.05$). and all restorations were esthetically acceptable after 2 years, and 93.3% of DT and 90% of IT showed acceptable function. The authors concluded that both restorations presented similar and good clinical behavior for all the properties analyzed, and that light-cured direct posterior composite restorations perform similarly to indirect composite restorations made with precured CAD/CAM composite blocks up to 2 years.

In a 2018 systematic review, Azeem et al. sought to compare the clinical performance of direct versus indirect composite restorations in posterior teeth. This review included thirteen studies in which clinical performance of various types of direct and indirect composite restorations in posterior teeth were compared. Out of the thirteen studies which were included seven studies had a high risk of bias and five studies had a moderate risk of bias. One study having a low risk of bias, concluded that there was no significant difference between direct and indirect technique. However, the available evidence revealed inconclusive results, and further research should focus on randomized controlled trials with long term follow-up to give concrete evidence on the clinical performance of direct and indirect composite restorations.

Shu et al. (2018) conducted a systematic review to compare treatment outcomes of direct and indirect permanent restorations in endodontically treated teeth and provide clinical suggestions for restoring teeth after endodontic treatment. Electronic databases and gray literature were screened for articles that reported on prospective and retrospective clinical studies of direct or indirect restorations after endodontic treatment with an observation period of at least 3 years. Primary outcomes were determined to be short-term (≤ 5 years) and medium-term (> 5 and ≤ 10 years) survival. Secondary outcomes included restorative and endodontic success of restored teeth. The quality of included studies and risk of bias were assessed using Cochrane Collaboration's tool for RCTs (randomized controlled trials), the Newcastle-Ottawa Scale for cohort studies, and the Agency for Healthcare Research and Quality (AHRQ) methodology checklist for cross-sectional studies. The GRADE system was used for assessing collective strength of the overall body of evidence. Only 9 (2 RCTs, 3 retrospective cohort studies, 3 cross-sectional studies) met the inclusion criteria, and 8 studies were used in the meta-analysis. In general, indirect restorations (mostly full crowns) showed higher 5-year survival and 10-year survival than direct restorations. However, there was no statistical difference in short-term (≤ 5-years) restorative success and endodontic success. The authors concluded that there is a weak recommendation for indirect restorations to restore endodontically treated teeth, especially for teeth with extensive coronal damage. Indirect restorations using mostly crowns have higher short-term (5-year) and medium-term (10-year) survival than do direct restorations using composite or amalgam (GRADE quality of evidence: low to moderate), but no difference in short-term (≤ 5 years) restorative success (low quality) and endodontic success (very low quality). There is a need for high-quality clinical trials, especially well-designed RCTs.

Angeletaki et al (2016) conducted a systematic review and meta-analysis to evaluate the long-term clinical performance of direct versus indirect composite inlays/onlays in posterior teeth. The electronic databases MEDLINE, EMBASE, Cochrane Oral Health Group's Trials Register and CENTRAL were searched with no restriction to publication date or language. Only randomized controlled trials (RCTs) were included and evaluated according to Cochrane risk of bias tool. The main outcome assessed was the restoration failure, determined by several clinical parameters. Two studies concerning direct and indirect inlays (82 patients with 248 restorations) and one study for onlays (157 patients with 176 restorations) satisfied the inclusion criteria. Two trials, one of unclear and one of high risk of bias, could be mathematically combined. The meta-analysis indicated no statistically significant difference in the risk failure between direct and indirect inlays, after 5 years. Only one parameter, the marginal discoloration, slightly favored direct inlays after 11 years. Only one study dealt with onlays; an overall 5-year survival of 87% was reported. The authors concluded that the difference of the two techniques did not reach statistical significance in order to recommend one technique over the other, and the scarcity of primary studies support the need for further well-designed long-term studies in order to reach firm conclusions about both techniques. Resin composite materials, placed directly or indirectly, exhibit a promising long-term clinical performance when rehabilitation of posterior teeth is needed.

da Veiga et al (2016) conducted a systematic review and meta-analysis to assess the differences in clinical performance in direct and indirect resin composite restorations in permanent posterior teeth. PubMed, the Cochrane Library, Web of Science, Scopus, LILACS, BBO, ClinicalTrials.gov and SiGLE were searched without restrictions. The review included randomized clinical trials (RCTs) that compared the clinical performance of direct and indirect resin composite restorations in Class I and Class II cavities in permanent teeth, with at least two years of follow-up. The risk of bias tool suggested by Cochrane Collaboration was used for quality assessment. Twenty studies fulfilled the inclusion criteria after the abstract screening. Two articles were added after a hand search of the reference list of included studies. After examination, nine RCTs were included in the qualitative analysis and five were considered to have a 'low' risk of bias. The overall risk difference in longevity between direct and indirect resin composite restorations in permanent posterior teeth at five-year follow-up was 1.494, and regardless of the type of tooth restored, that of molar and premolars was 0.716 at three-year follow-up. Based on the findings, the authors concluded that there was no difference in longevity of direct and indirect resin composite restorations regardless of the type of material and the restored tooth.
Mendonca et al. (2010) conducted a study to evaluate the clinical performance of indirect composite restorations versus direct composite restorations after one year. Seventy-six separate restorations were placed on pre-molars and molars in healthy patients, either for new caries, or the replacement of deficient existing restorations. Materials were placed according to manufacturer’s directions and evaluated at baseline and one year according to the modified United States Public Health Services (USPHS) criteria for: color match (CM), marginal discoloration (MD), secondary caries (SC), anatomic form (AF), surface texture (ST), marginal integrity (MI) and pulp sensitivity (PS). At 12 months, there was no SC or PS noted, and statistically insignificant changes in CM, AF, and ST. There were, however, statistically significant MI changes, with the direct composite restoration material showing superior results after one year. It was concluded that both provide satisfactory clinical performance, with the direct composite restorations performing better than indirect composite restorations for marginal integrity.

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Policy History/Revision Information

Date	Summary of Changes
12/01/2023	New dental policy

Instructions for Use

This Dental Policy provides assistance in interpreting the UnitedHealthcare Community Plan of Ohio dental benefit plans. When deciding coverage, the member specific benefit plan document must be referenced as the terms of the member specific benefit plans may differ. In the event of a conflict, the member specific benefit plan document governs. Before using this policy, please check the member specific benefit plan document and any applicable federal or state mandates. UnitedHealthcare reserves the right to modify its Policies and Guidelines as necessary. This Dental Policy is provided for informational purposes. It does not constitute the practice of medicine or medical advice.

Archived Policy Versions

Effective Date	Guideline Number	Guideline Title
N/A	N/A	N/A