MEDICAL POLICY

Medical Policy Title	**Dental Inlays and Onlays**
Policy Number	**13.01.03**
Current Effective Date	May 22, 2025
Next Review Date	May 2026

Our medical policies are based on the assessment of evidence based, peer-reviewed literature, and professional guidelines. Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract. (Link to Product Disclaimer)

POLICY STATEMENT(S)

Please Note: This policy only addresses indirect inlays and onlays; it does not address direct fillings.

I. Dental inlays and onlays of bicuspid or molar teeth are considered **medically appropriate** for **ANY** of the following indications:

   A. A fractured cusp or tooth cannot be restored with a dental filling and does not require more extensive procedures to repair the tooth;

   B. There is moderate to severe or deep mesial or distal tooth decay that goes into the root of the tooth;

   C. Following a root canal.

RELATED POLICIES

Corporate Medical Policy

7.01.21 Dental and Oral Care under Medical Plans

7.03.01 Coverage for Ambulatory Surgery Unit (ASU) and Anesthesia for Dental Services

11.01.15 Medically Necessary Services

13.01.01 Dental Implants

13.01.02 Dental Crowns and Veneers

13.01.04 Periodontal Scaling and Root Planing

13.01.05 Periodontal Maintenance

POLICY GUIDELINE(S)

I. An inlay or onlay is **eligible for coverage** on the date the inlay or onlay is cemented to the tooth.

II. When an inlay or onlay is used to replace an existing filling in the absence of decay, benefits will only be provided based on the Allowable Expense for an amalgam or composite filling.

DESCRIPTION

Indirect dental inlays and onlays are restorations made in a dental laboratory or a dental office laboratory. Indirect inlays and onlays are considered when not enough tooth structure remains to support a filling, but the tooth is not so severely damaged that it needs a crown. Inlays and onlays are placed in order to save the healthy portion of the injured tooth.

An inlay is 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 and is retained by dental cement. An onlay is more extensive than an inlay and replaces one or more cusps and adjoining occlusal surfaces or the entire occlusal surface and is retained by mechanical or adhesive means.

An indirect inlay or onlay is cemented into place and can be composed of gold, composite resin, or porcelain.

SUPPORTIVE LITERATURE

Shu and colleagues (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. The authors reviewed electronic databases and gray literature 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 three (3) years. Primary outcomes were determined to be short-term (≤ five years) and medium-term (> five and ≤ 10 years) survival. Secondary outcomes included restorative and endodontic success of restored teeth. The GRADE system was used for assessing collective strength of the overall body of evidence. Nine studies (two randomized controlled trials (RCTs), three retrospective cohort studies, three cross-sectional studies) met the inclusion criteria, and eight studies were used in the meta-analysis. In general, indirect restorations (mostly full crowns) showed higher 5-year survival (OR 0.28, 95% CI 0.19-0.43, $p < 0.00001$) and 10-year survival (OR 0.20, 95% CI 0.12-0.31, $p < 0.00001$) than direct restorations. However, there was no statistical difference in short-term (≤ 5-years) restorative success (OR 0.32, 95% CI 0.05-2.12, $p = 0.24$) and endodontic success (OR 0.88, 95% CI 0.72-1.08, $p = 0.22$). 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 primarily 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.

Suksawat and colleagues (2024) conducted a randomized control trial (RCT) to examine the fracture resistance and fracture modes of endodontically treated (ET) maxillary premolars restored with onlays fabricated using different computer-aided design and computer-aided manufacturing (CAD-CAM) materials. Sixty human maxillary premolars were selected as abutments and were extracted for orthodontic reasons after each patient was informed about the study and signed a consent form. All teeth were immersed in 0.5% chloramine-T solution for one month to provide adequate disinfection

and prevent dehydration while having no adverse effect on dentin. All premolars were examined using a stereomicroscope to confirm the absence of cracks, caries, and other defects. The maxillary first premolars were randomly assigned to six groups (n=10). The first group comprised intact teeth (INT). The remaining premolars were prepared for mesio-occluso-distal cavity and root canal treatments. Group 2 was treated using polymer-reinforced zinc oxide-eugenol intermediate restorative material (IRM). Groups 3–6 were core build-up, prepared for onlay, and restored using resin nanoceramic (Cerasmart [CER]), polymer-infiltrated ceramic networks (Vita Enamic [VE]), lithium disilicate-based ceramic (IPS e.max CAD [EM]), or translucent zirconia (Katana Zirconia UTML [KZ]). The study results identified that there were no significant differences in fracture load among the INT, CER, VE, and EM groups. The fracture load in the KZ group was significantly higher than those in the other groups ($P < 0.05$). The authors concluded that endodontically treated teeth restored using Cerasmart, Vita Enamic, or IPS e.max CAD onlays had fracture resistance and fracture patterns comparable to those of intact teeth. Katana Zirconia UTML-restored ETT had the highest fracture load but also a higher unrestorable failure rate.

PROFESSIONAL GUIDELINE(S)

Not Applicable

REGULATORY STATUS

The U.S. Food and Drug Administration (FDA) regulates dental products, including materials and equipment used in the fabrication of inlays, onlays, and other dental restorations, to ensure they meet safety and effectiveness standards.

FDA Medical Device website. Available from: https://www.fda.gov/medical-devices [accessed 2025 Apr 7]

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational
- (NMN)=Not medically necessary/appropriate

CDT Codes

Code	Description
D2510	Inlay – metallic – one surface
D2520	Inlay – metallic – two surfaces
D2530	Inlay – metallic – three or more surfaces
D2542	Onlay – metallic – two surfaces

Code	Description
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

REFERENCES

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Fathy H, et al. Clinical performance of resin-matrix ceramic partial coverage restorations: a systematic review. Clinical Oral Investigations. 2022;26:3807-3822.

Kassis C, et al. Effect of inlays, onlays and endocrown cavity design preparation on fracture resistance and fracture mode of endodontically treated teeth: an in vitro study. J Prosthodont. 2021 Aug;30(7):625-631.

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Shu X, et al. Direct and indirect restorations for endodontically treated teeth: a systematic review and meta-analysis. International Academy for Adhesive Dentistry (IAAD). 2017 consensus conference caper. J Adhes Dent. 2018;20(3):183-194.

Suksawat N, et al. Fracture resistance and fracture modes in endodontically treated maxillary premolars restored using different CAD-CAM onlays. J Prosthodont Res. 2024; 68(2):290–298.

SEARCH TERMS

Dental inlays, dental onlays, indirect filling, overlay filling

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

Based upon review, dental inlays and onlays are not addressed in a National or Local Medicare coverage determination or policy.

However, dental services are addressed in the Medicare Benefit Policy Manual Chapter 16, Section 140 which addresses General Exclusions from Coverage – Dental Services Exclusion and states "Items and services in connection with the care, treatment, filling, removal, or replacement of teeth, or structures directly supporting the teeth are not covered". [Last updated 2014 Nov 6; accessed 2025 Apr 3]. Available from: Medicare Benefit Policy Manual - Chapter 16: General Exclusions from Coverage

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION

Committee Approval Dates

04/24/14, 04/23/15, 04/28/16, 06/22/17, 06/28/18, 06/27/19, 06/25/20, 06/24/21, 06/16/22, 06/22/23, 05/16/24, 05/22/25

Date	Summary of Changes
05/22/25	• Annual Review; policy intent unchanged.
01/01/25	• Summary of changes tracking implemented.
04/24/14	• Original effective date