



## Professional Resources

### Impression-Taking Troubleshooting Guide

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As appeared in *Collaborative Techniques*, Winter 2001

The completion of an accurate impression following tooth preparation is a critical step in the long-term success of any restorative procedure. Precise impressions consistently communicate clear, detailed, and complete margins. While a variety of high-quality impression materials that provide hydrophilic and hydrophobic properties are currently available in a wide range of viscosities, meticulous care must be taken during impression taking to produce an exact replica of the patient's clinical condition.



#### Accurate Impressions

Exact impression capture will enable consistent, precise communication. Since the development of clear, concise margins is paramount to the transfer of critical hard and soft tissue structures, the use of high-quality impression materials will provide dimensional stability and accuracy.

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#### Preliminary Capture



A preliminary impression of the preparations was captured without wash material. Since the material is thixotropic and does not provide sufficient contact with the tooth, the margins were inaccurate. Inadequate time between mixing and seating, rocking of the tray to achieve proper seating, and tray movement following seating will also result in inaccurate margin capture.

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#### Definitive Impression

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The final impression demonstrates clear margin detail, and the tooth structures are evenly centered within the material for accurate communication. The use of hydrophilic and hydrophobic materials may also enable fluid displacement for definitive impression capture without involved hemostasis or retraction techniques (in select instances).

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## **Inadequate Margins**



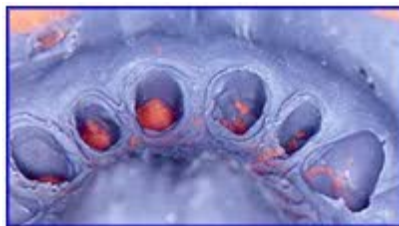
Inadequate capture of the gingival margins may occur due to:

- Insufficient retraction of the sulcus around the preparation
- The presence of moisture or bleeding around the dentition
- Insufficient cord retraction and tissue displacement

Care must be taken not to tear the soft tissues during cord placement to avoid potential gingival recession and compromised aesthetics.

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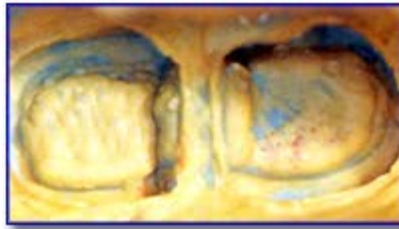
## **Voids**



Voids can be developed within the impression due to:

- Inadequate sulcus retraction
  - The use of incorrect syringing techniques around the preparation
  - A prolonged period between mixing and seating of the impression material.
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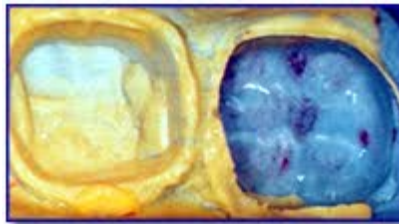
## **Inappropriate Use of Wash Materials**



Although the margins may be clearly communicated, voids in the impression will result in inaccurate restorations and incomplete transfer of critical data. To prevent potential complications, a strong bond should be developed between the putty and wash materials, and no signs of separation should be evident.

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## **Final Impression**



An appropriate amount of wash material will further assist precise impression capture and the transfer of clear marginal detail. While various impression materials differ in viscosity and composition, the materials must be properly mixed to ensure appropriate handling and setting.

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## **Contact With Tray**



Distortion of the final impression may occur due to improper tray positioning. In order to ensure proper fit and capture, care must be taken that:

- Appropriate tray materials are selected prior to impression taking
  - Correct tray seating procedures are followed
  - Correct tray size and shape are determined preoperatively
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## **Ledges**



While a dimple in the putty material is often required, care must be taken to avoid development of ledges due to:

- Incorrect sizing of the dimple
- Improper tray position
- Dislodging the tray from the material prior to full setting

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## **Tearing**



Appropriate setting times must be consistently observed to avoid premature removal of the tray from the mouth and subsequent tearing. Inadequate retraction of the sulcus and the presence of moisture or bleeding around the preparation may also cause some impression materials to tear.

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## **Precise Communication Tools**



Accurate impressions clearly communicate clinical structures. Impression materials should be properly mixed according to the manufacturers' instructions to develop a consistent bond and predictable capture.

A portion of the information discussed herein and the figures of accurate impressions, inadequate margins, voids, contact with tray, and ledges appear courtesy of National Dentex (NDX), Boston, Massachusetts.

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