

FIDUCIARY REFERENCE MARKER PLACEMENT

For the Surgical Design Team to be able to align pre-surgery and post-surgery intraoral scan, they need 3 reference points that DO NOT move from start to finish. **Make sure they are stable when placed. They cannot move at all, including the sleeve around the screw.**

Ideal Fiduciary Reference Marker Placement:

- 2 reference markers on the palate
- 2 reference markers on **EACH** retromolar pad (stay on the ridge, can go slightly lingual)

Additional options if ideal placement is not possible:

• **Leave in molars:** If it's the maxilla leave 2, but if it's the mandible leave the posterior 2 molars on each side. The issue with leaving molars, is that it is often in the way of the handpiece if you are angling implants. Check the angle, if the teeth are in the way, you can cut them down to the tissue level and place a fiduciary marker in the tooth or cut an X in to the tooth. **The teeth have to stay in through the entire surgery and should not be removed until the lab tells you the alignment is good.** This is the other drawback.

Places where reference markers should not be placed:

• **Buccal/Lingual surfaces:** One of the drawbacks is that if need to take an impression, you cannot get a clean impression from these surfaces. They are difficult to scan in those positions which makes it hard for the designers to align the files. You are more likely to hit these with your instruments when retracting

Why do I only need 2 reference markers on the maxilla and 4 on the mandible?

The maxilla has so much more anatomy that is present pre and post surgery we can use to match up the scans. We don't have this on the mandible. We need at least 3 points of reference to match a good alignment. It is nearly impossible to do this on the mandible without a minimum of 3 reference markers, ideally 4.

If I only need 3 points, why are you asking for 4 reference markers on the mandible?

We want to plan for error. Sometimes a Fiduciary gets moved and you have to take it out, only leaving 3. Sometimes, it's in the way of the handpiece and you have take one of them out. If we only put in the minimum number of reference markers, we take the risk of not having enough points of reference. These are complicated surgeries, so why not take the extra 5 minutes to secure a good design? It's time on the front end to save time on the back end when patience is down and the team and patient are ready to be done. This extra step will help alleviate problems at the time of the appointment.

