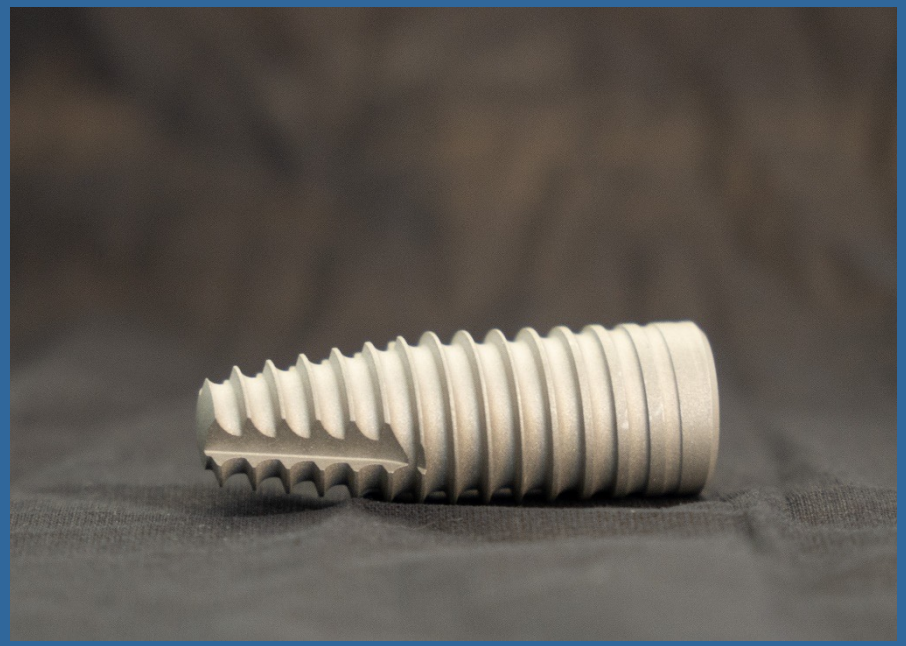


The Restorative Perspective

Prosthetic planning, managing the multi-disciplinary interface, & setting patient expectations.

Andy Stevenson D.D.S.
April 26, 2023

GRAND.DENTAL

OBJECTIVES

- Review the importance of establishing systems for managing complex cases.
- Review the importance of interdisciplinary communication in planning.
- Suggest the importance of a shared lexicon among the implant team.
- Review available single unit and full arch prostheses.

THE IMPORTANCE OF PLANNING

- Restorative planning
- Surgical planning
- Setting patient expectations
- Intra-office systems & workflows

“Heroism is more fun, but less reliable than good planning”

– Seth Godin

Comp exam

Prophy

CPC

Periodic exam

ACC

CBU

Sealants

PFM

Alloy

RCT

RBC

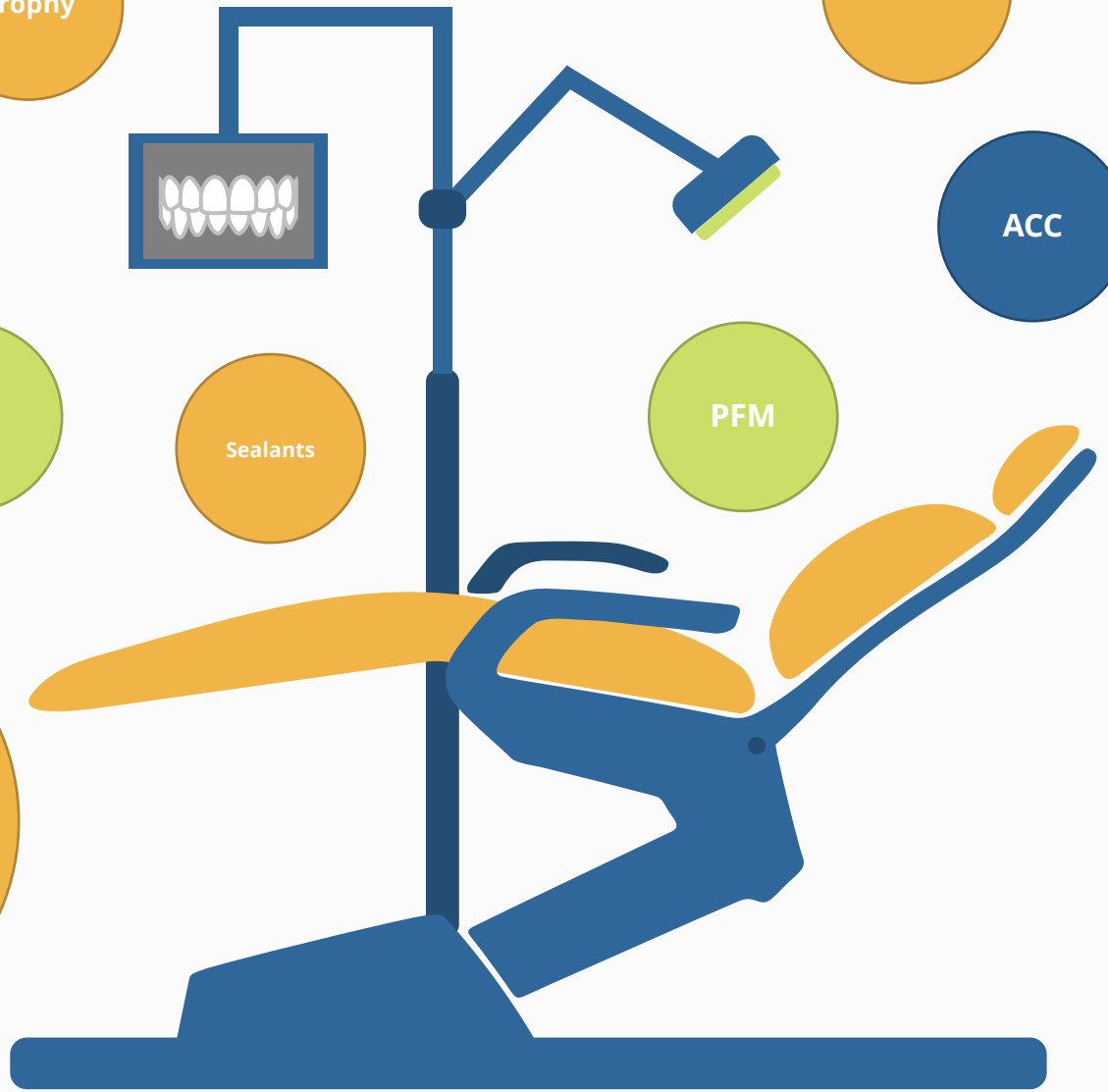
SRP

Limited exam

TE

RCT

Prefab Post



IMPLANTS ARE

- Excellent service to patients.
- Intellectually stimulating.
- Well compensated.

INTRA-OFFICE SYSTEMS

- Much of your perceived competence is based on how smooth the process feels to the patient.
- Have workflows in place that:
  - Ensure your patient gets to the surgeon and has a good experience.
  - Ensure your patient isn't lost in the months-long process.
- Make sure your team knows the lexicon and the basics.
- Is it obvious that implants are standard operating procedure?

"Luck is what happens when preparation meets opportunity."

– Seneca

Dental implant options & coding

Single tooth implant

Implant placed by surgeon **60002**	Custom abutment (C.A.R.E.S., Atlantis, Procera) **D6057** - $8[redacted] *If anterior tooth with smile line >50%* Custom interim & interim abutment **D6051** - $2[redacted] **D6085** - $2[redacted]	Abutment supported AC crown (e.Max, Enamic, zirconia) **D6058** - $1[redacted]	=	**$2,[redacted]** (posterior tooth) **$3,[redacted]** (anterior tooth with custom interim)

Implant retained FDP (bridge)

Implant placed by surgeon **60002**	Implant supported PFM retainer **D6098** – $1,[redacted]	PFM pontic (base metal) **D6241** - $1,[redacted]	=	**$5,[redacted]** (3-unit) **$6,[redacted]** (4-unit)

Implant retained overdentures (Locator, NovaLock concepts)

Implants placed by surgeon **60002**	Semi-precision abutment **D6191** $5[redacted]	Semi-precision attachment **D6192** $1[redacted]	Implant supported CU+metal/CL* **D6110+D5876/D6111** $2,[redacted]+$4[redacted]/$2,[redacted] Implant retained RPD (arch^{-1}) **D6112/D6113** - $2,[redacted]	=	**$5,[redacted]** (Maxillary arch w/ metal framework on 4 implants) **$3,[redacted]** (Man. on 2 implants) **$5,[redacted]** (Man. on 4 implants w/ framework) **$4,[redacted]** (per arch on 2 implants)

Implant telescoping abutment retained & supported dentures (Conus concept)

Implants placed by surgeon **60002**	Custom abutment (Conus) **D6057** - $8[redacted]	Implant supported CU/CL* (arch^{-1}) **D6110/D6111** - $3,[redacted] This amount must be changed manually each case	Nighttime appliance (arch^{-1}) **D9944** - $5[redacted]	=	**$ 8,[redacted]** (arch^{-1} on 4 implants) **$9,[redacted]** (arch^{-1} on 6 implants)

Fixed, full arch prosthesis (FP3) (All-on-4, Pro-arch concepts)

Implants placed by surgeon **60002**	Fixed, full-arch maxillary/mandibular prosthesis(arch^{-1}) **D6114/D6115** - $15,[redacted] (Prefabricated abutments (SRAs, MUAs) are typically placed by surgeon with digital planning, otherwise use code D6056 ($6[redacted]) for each site)	=	**$15,[redacted]** (arch^{-1}, as long as abutments. are placed by surgeon)

**Implant supported CU/CL fees are manually changed based on process and laboratory costs.*
Fee totals are general estimates for a straightforward case and do not include surgical costs.

Updated March 30, 2023
Fees effective January 1, 2023 for all treatment agreed to after January 1, 2023

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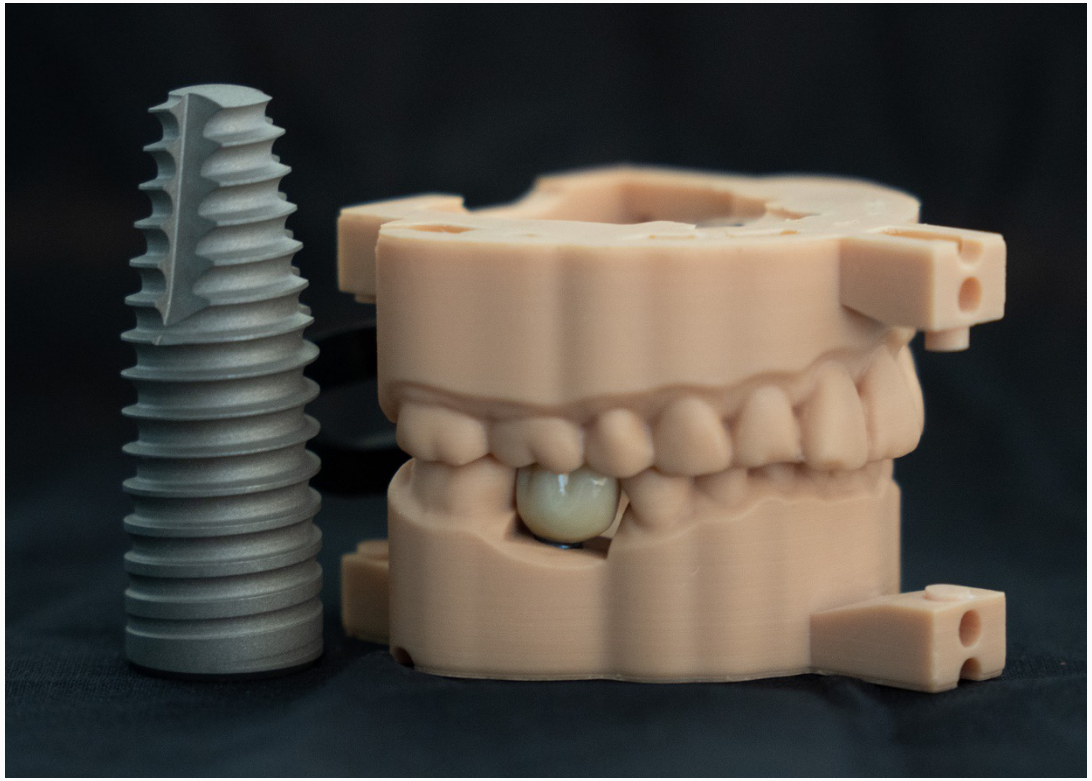
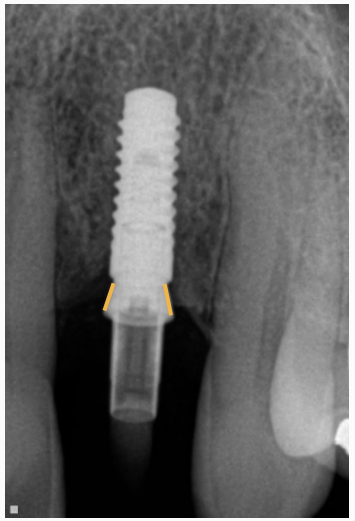
SINGLE TOOTH IMPLANT (STI)

- Contrast with an RPD and FDP in treatment presentation.
- Treatment planning
  - 10 mm restorative space.
  - 6 mm meso-distal space.
  - Adequate bony height & width.



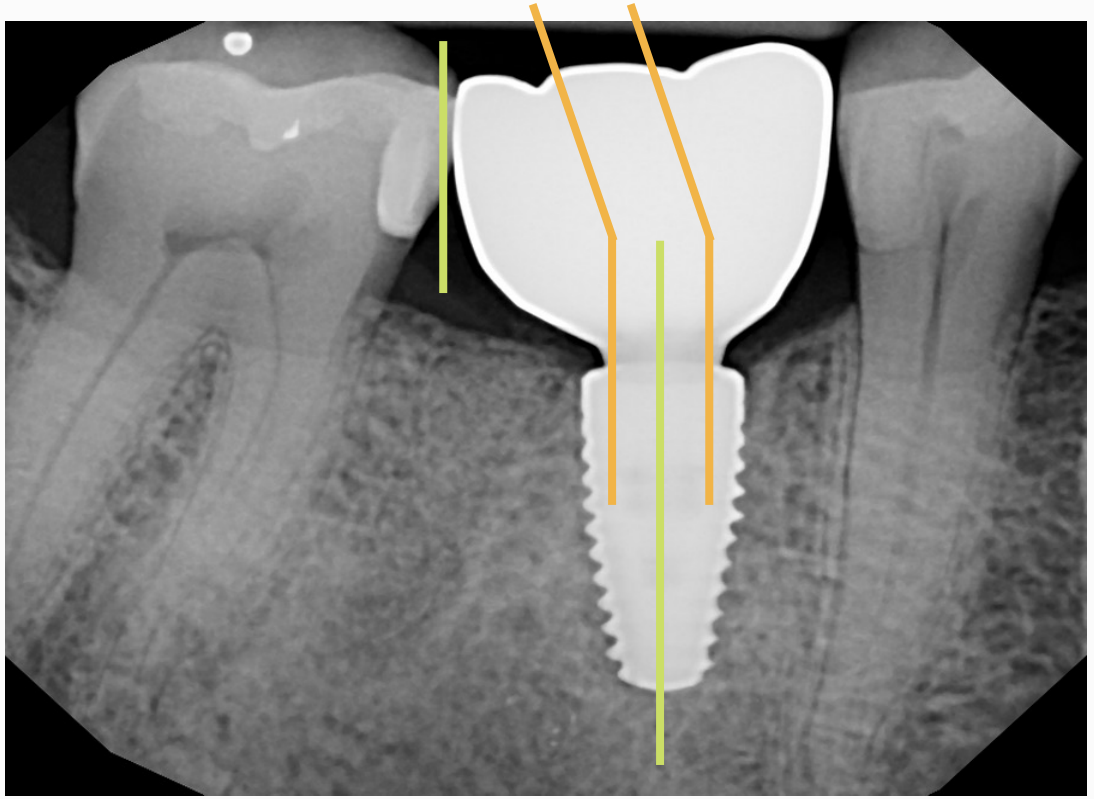
ANTERIOR STI

- If anterior tooth and smile line >50%, I create a lab fabricated PMMA interim.
- Interim abutment (D6051) + Interim crown (D6085).
- 2 week soft-tissue contouring follow-ups until we agree to move to final impression.



CUSTOM ABUTMENTS

- When done well:
  - Stable bone response
  - Improved soft tissue response
  - Fewer prosthetic complications
- Give control of:
  - Emergence profile
  - Margin circumference & location
  - Wall height, taper, & draw
  - Clearance



Surgeon: Brock Radich
Lab: Williamsburg Dental Lab

Barwacz, et al. 2021. A Retrospective, multicenter, Cross-Sectional Case Series Study Evaluationg Outcome of CAD/CAM Abutments on Implants from Four Manufacturers. *Journal of Oral & Maxillofacial Implants.*

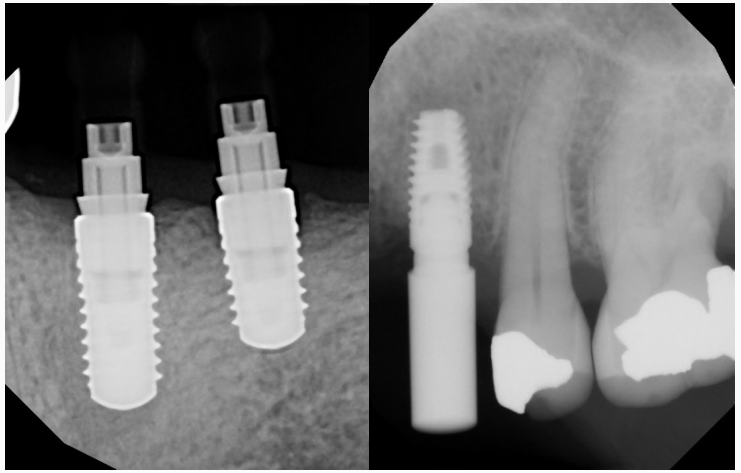
CHOOSING A SCANBODY

Straumann Mono-Scanbodies

C.A.R.E.S. workflows

Single & multiple units
Single use

Dentsply-Sirona IO-Flo & IO-Flo-S Scanbodies



Atlantis workflows

Single units & multiple units respectively
~120 uses

Elos Scanbodies

Procera workflows*

Single & multiple units
~100 uses

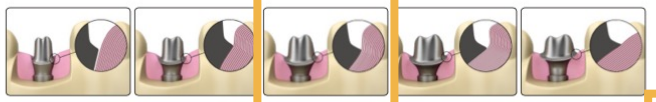
*requires 0.9mm Elos driver

CUSTOM ABUTMENT DESIGN

Emergence width options CUSTOMBASE

Indicate for ATLANTIS Abutment, ATLANTIS Crown Abutment or ATLANTIS Conus Abutment – custom orders

Note: Not applicable for ATLANTIS Conus Abutment – overdenture



Note: Indicate if different than the default settings in ATLANTIS WebOrder.

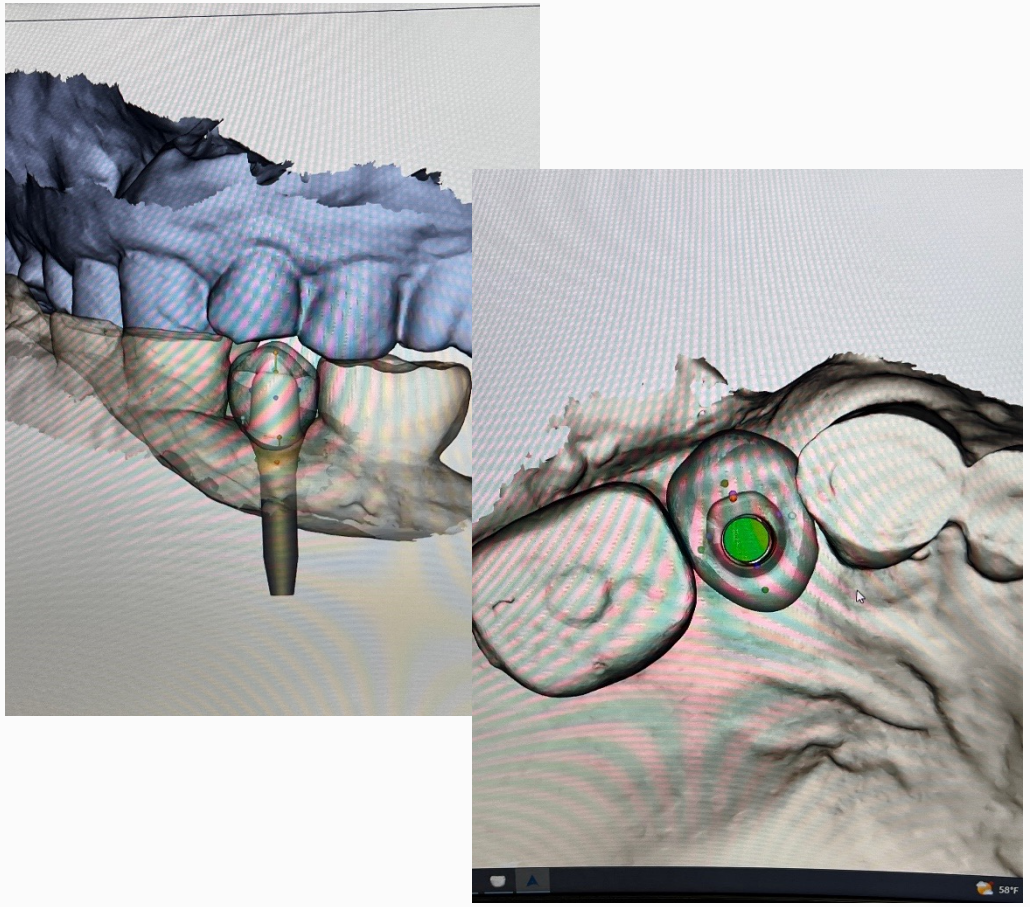
Tooth number	No tissue displacement	Support tissue	Contour tissue	Full anatomical	Anatomical support	Buccal/Facial 1.0 mm	Distal 0.75 mm	Mesial 0.75 mm	Lingual 0.5 mm
.....	○	○	○	○	○	.....	.....	.....	.....
.....	○	○	○	○	○	.....	.....	.....	.....
.....	○	○	○	○	○	.....	.....	.....	.....
.....	○	○	○	○	○	.....	.....	.....	.....

ATLANTIS™ Abutment – for cement-retained restorations

Tooth number	Manufacturer and implant system	Implant diameter Ø	Titanium	Gold-shaded titanium	Zirconia shade 00	Zirconia shade 10	Zirconia shade 20	Zirconia shade 30	ATLANTIS™ duplicate abutment
.....	.....	.....	○	○	○	○	○	○	○
.....	.....	.....	○	○	○	○	○	○	○
.....	.....	.....	○	○	○	○	○	○	○
.....	.....	.....	○	○	○	○	○	○	○

Note: Not available for zirconia.

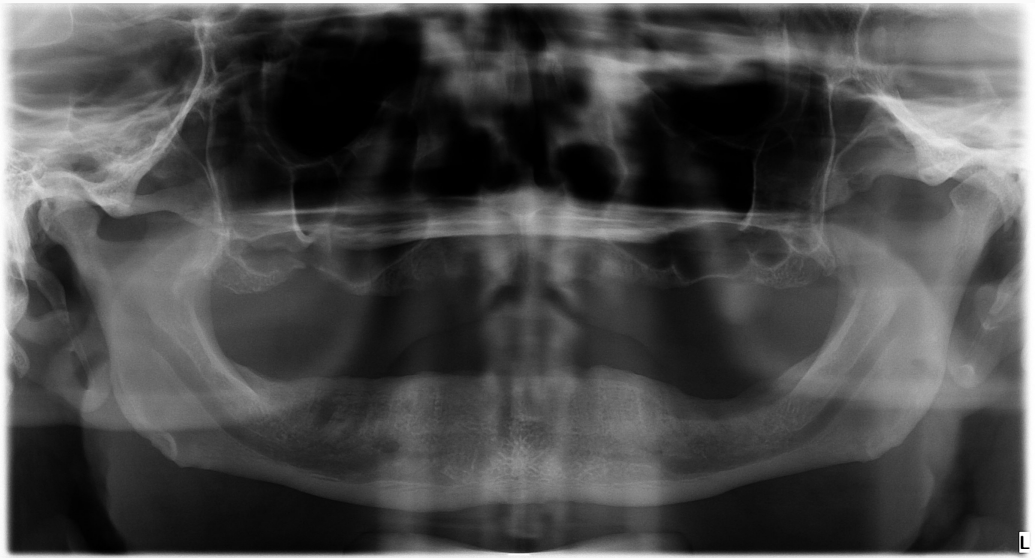
Atlantis order form



'Virtual Atlantis Design' Software
Courtesy Mike Summerwill, Williamsburg Dental Lab

CHOOSING AN IMPLANT BRAND

- Much like material selection the implant brand & platform should be determined based on the planned, patient-specific final restoration.
  - This includes final impression technique.
- Also consider existing implants and future patient needs.



BONE LEVEL VERSUS TISSUE LEVEL

Prosthetic indications for a tissue level implant

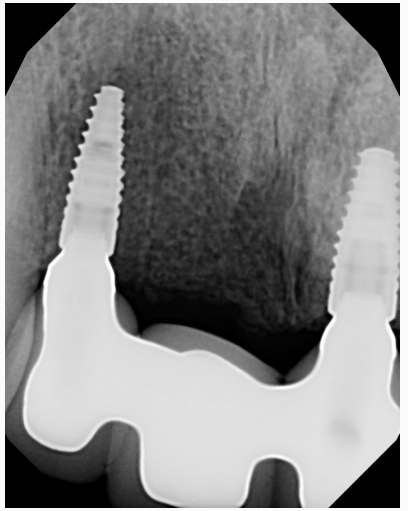
- Planned for overdentures, low force, older, & poor healer.

Surgical indications for a tissue level implant

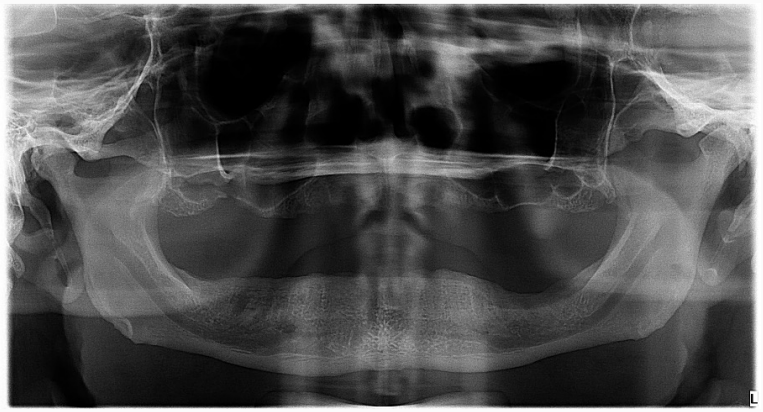
- Poor healer.
- Intra-operative need for increased implant diameter.
- Create a zone of safety between bone and restorative dentist.
- Establish the initial emergence profile so the restorative dentist can’t mess it up.

IMPLANT SUPPORTED FDP (isFDP)

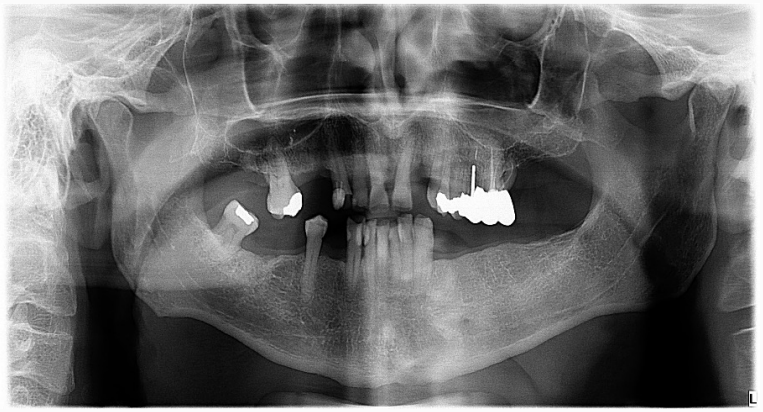
- 10mm restorative space.
- Watch the occlusal plane!
- Digitally fabricate frameworks.
- Watch implant vs abutment supported when coding.
- Right now: feldspathic porcelain on an implant supported chromium cobalt alloy framework.
- Coming soon?: zirconia on a titanium framework.



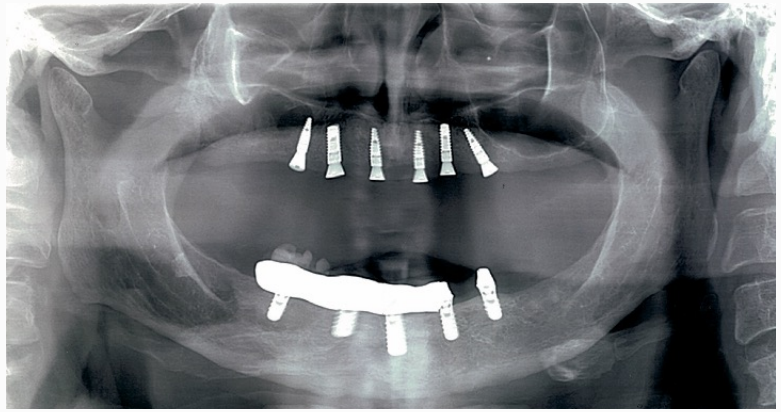
FULL ARCH CASE PATIENT PRESENTATION



ALREADY EDENTULOUS



TERMINAL DENTITION



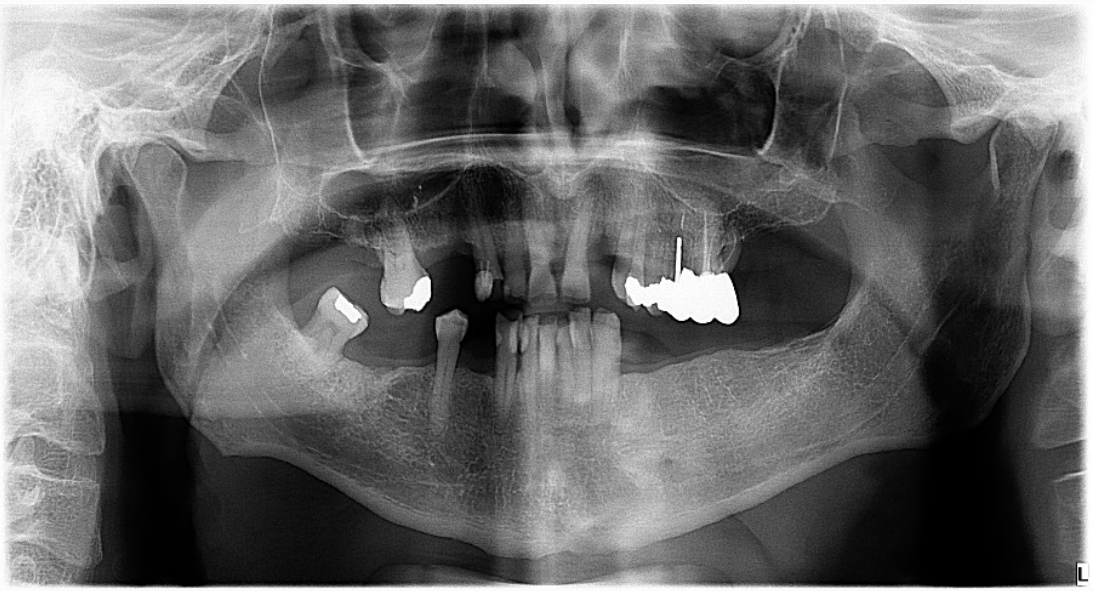
ALREADY RESTORED

WHEN DO I TALK TERMINAL?

- Placing 6 implants in an arch and there are still teeth.
- 6 or fewer solid teeth in an arch.
  - Periodontally sound.
  - Restoratively sound (including endodontically).
  - Prosthetically sound.

“When doing a full mouth reconstruction, I have often regretted keeping a tooth, but do not recall regretting extracting one.”

– Warren Libman



DEEMED TERMINAL

- Generalized caries in mandibular anterior.
- #2 is necrotic with ASAP.
- #9 has mobility.
- VDO is maintained.
- Occlusal plane is complex.

The dentition is determined to be terminal:
--The following teeth have a poor or hopeless periodontal prognosis: 2, 9, 14, 23, 24, 25, & 26.
--The following teeth have a poor or hopeless restorative prognosis: #2, 6.
--The following teeth are maintainable but present prosthetic impediments to rehabilitation: 7, 8, 11, 12, 13, 14, 22, 23, 24, 25, 26, 27, 29, & 31.

TREATMENT OPTIONS

CONVENTIONAL DENTURE

OVERDENTURE

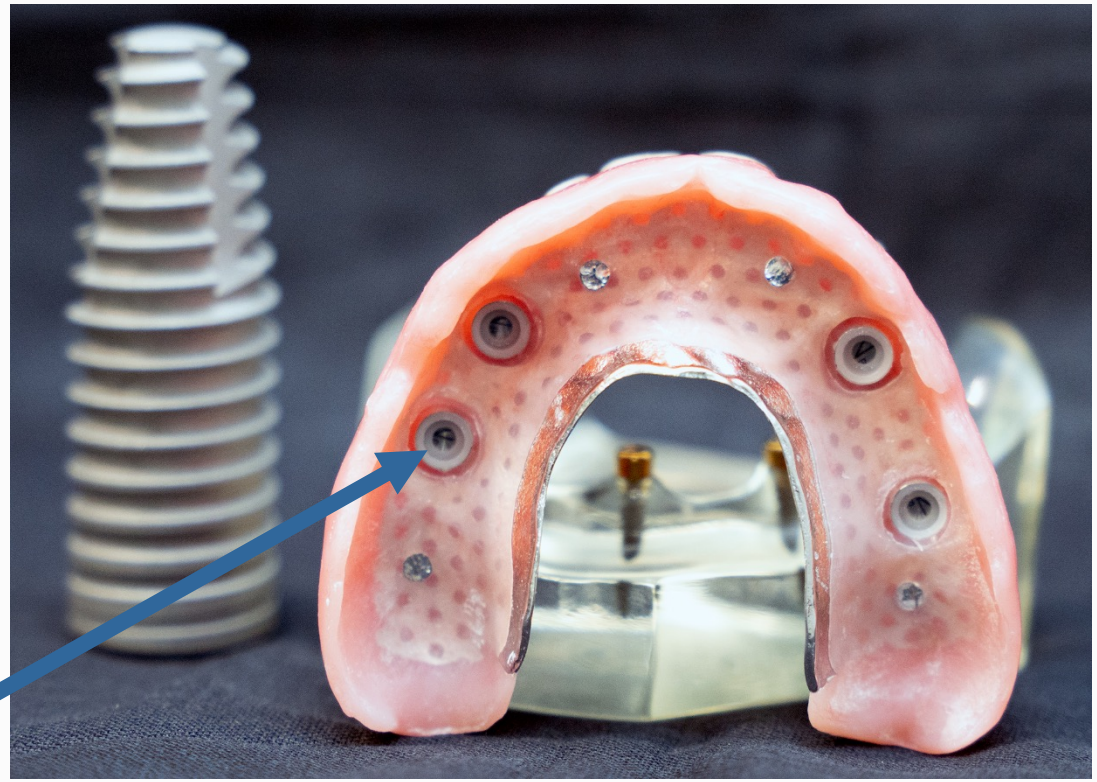
FIXED, FULL-ARCH PROSTHESIS (FFP, FPX)

IMPLANT RETAINED OVERDENTURE

- Novaloc retention system.
  - Similar to Optiloc on Ridgefits.
- Backwards compatible to standard Locator abutments.
- Straight & 15° abutments.
- ADA codes changed recently to abutment and attachment.
- I prefer to have the lab process the inserts.

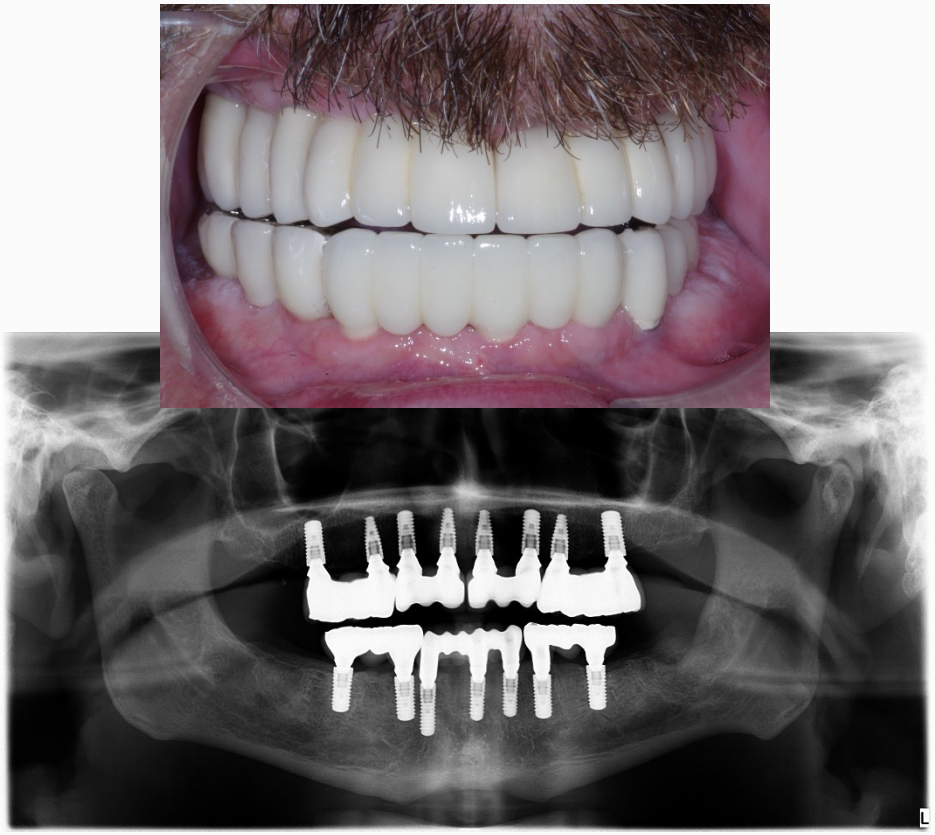
OVERDENTURE PLANNING

- 12 mm restorative space.
- 4/4 implants arch^{-1} is ideal.
  - 0/2 is just fine.
- As much A-P spread as possible.
- If >2 implants arch^{-1}, add metal framework in the denture (D5876).
- If >2 implants arch^{-1}, make a new denture, don't convert.
- Make sure the lab uses the processing components.



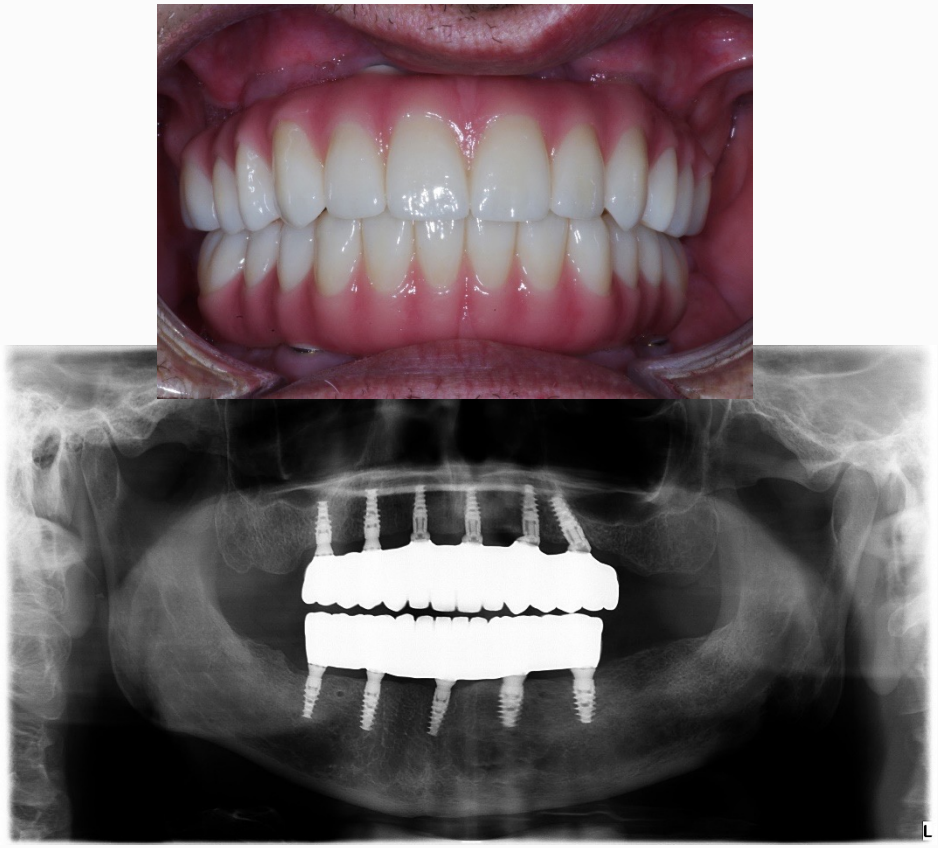
FIXED, FULL-ARCH PROSTHESES (FFP or FPX)

FP1/FP2



Surgeon: Mike Morio
Lab: Williamsburg Dental Lab

FP3



Surgeon: Brock Radich
Lab: Hybrid Technologies

FIXED, FULL-ARCH PROSTHESIS PLANNING

FP1/FP2

- 10 mm restorative space.
- PFM with metal occlusals & linguals.
- I prefer to segment the spans.
- Lingualized occlusion.

FP3

- 14 mm restorative space.
- Monolithic zirconia.

- Flat occlusal everything in full arch cases.
- No such thing as second molars in FFPs.
- No full-tooth distal extensions in FFPs.

INTERIM OPTIONS

1. Nothing
2. Delayed fabrication denture
3. Existing denture
4. Immediate denture

WHAT I NEED TO KNOW
AT THE END OF MY EXAM

- Do any of the following limit our options:
  - Restorative space
    - "Space is where you murder an implant case" -Mark Ludlow
  - Need for lip support
  - Bony availability
  - Systemic factors
- Where is the ideal incisal edge position or how are we going to find it?
- What is our ideal VDO or how are we going to find it?
- Status of any existing prosthesis(es).
  - Good enough for an interim?
  - Good enough to use in planning?

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Reconstruction clinic

Terminal dentition

Examination addendum

Patient: _____ **Date of exam:** _____

Central incisor position:

- ☐ Acceptable and to be reproduced in the definitive restoration.
- ☐ Needs correction at or before the definitive prosthesis(es).
- ☐ Not applicable/unable to assess.

Central display at rest: _____ mm (average male: 0-2 mm, average female 2-4 mm).

High smile line:

- ☐ High (>100% incisal display) (~10% of population, twice as common in females).
- ☐ Moderate (75-100% incisal display) (~70% of population).
- ☐ Low (<75% incisal display) (~20% of patients).
- ☐ Not applicable/unable to assess.

Vertical dimension of occlusion:
- ☐ maintained and adequate.
- ☐ seemingly maintained but inadequate.
- ☐ lost.

Occlusal plane:
- ☐ Acceptable
- ☐ Complex:

Function/parafunction/force concern:
- ☐ High (low FMA, deep bite, recognized parafunction, wear facets)
- ☐ Average (FMA is WNL, no known parafunction)
- ☐ Low (High FMA, opposing denture, no known parafunction, history of long-standing long-span FDPs)

Support:
- ☐ Facial support necessary or likely necessary
- ☐ Lip support necessary or likely necessary

Clinical records checklist
- ☐ Clinical images (6 images)
- ☐ Intraoral scan
- ☐ Facebow transfer
- ☐ Pantomograph
- ☐ CBCT

Determinations
- ☐ Surgical consultation necessary to further prosthetic discussion.
- ☐ Mounted study models necessary to finalize treatment plan.

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Reconstruction clinic

Edentulous

Examination addendum

Patient: _____ **Date of exam:** _____

Maxillary residual ridge	Mandibular residual ridge
Ridge height: ☐ Good ☐ Average ☐ Poor **Ridge width:** ☐ Good ☐ Average ☐ Poor **Maxillary tuberosities:** ☐ Average ☐ Poor **Palatal vault:** ☐ Shallow ☐ Average ☐ Deep ☐ High frenal attachments ☐ High muco-gingival junction ☐ Tori present	**Ridge height:** ☐ Good ☐ Average ☐ Poor **Ridge width:** ☐ Good ☐ Average ☐ Poor ☐ High frenal attachments ☐ High muco-gingival junction ☐ Tori present
Maxillary existing prosthesis ☐ not applicable	**Mandibular existing prosthesis** ☐ not applicable
Retention: ☐ Good ☐ Average ☐ Poor **Stability:** ☐ Good ☐ Average ☐ Poor	**Retention:** ☐ Good ☐ Average ☐ Poor **Stability:** ☐ Good ☐ Average ☐ Poor

Central incisor position:
- ☐ Idealized and to be reproduced in the definitive restoration.
- ☐ Not idealized and should not be alternatively determined for the prosthesis(es).

Central display at rest: _____ mm (average male: 0-2 mm, average female 2-4 mm).

Smile line:
- ☐ High (>100% incisal display) (~10% of population, twice as common in females).
- ☐ Moderate (75-100% incisal display) (~70% of population).
- ☐ Low (<75% incisal display) (~20% of patients).

Vertical dimension of occlusion:
- ☐ adequate
- ☐ should be re-determined

Occlusal plane:
- ☐ Normal
- ☐ Complicated:

Function/parafunction/force concern:
- ☐ High (low FMA, recognized parafunction)
- ☐ Average (FMA is WNL, no known parafunction)
- ☐ Low (High FMA, opposing denture, no known parafunction)

Support:
- ☐ Facial support necessary or likely necessary
- ☐ Lip support necessary or likely necessary

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WHAT THE PATIENT NEEDS TO KNOW
AT THE END OF MY PRESENTATION

- Definitive prosthetic & interim plans *pending surgical consultation*.
- Three problems with implants
  - Cost
  - Time
  - It's surgery:
    - Need to involve an oral surgeon.
    - Systemic health & health history play a role.
    - Need to have good bone in the right places.
- Maintenance.
- Prognosis.
- Lifespan.

WHAT THE SURGEON NEEDS TO KNOW
FROM MY REFERRAL

- Diagnosis of the teeth in question.
- Planned definitive restoration *and* the amount of restorative space needed.
- Ideal number of implants prosthetically.
- Preferred implant brand and general platform.
- Planned interim restoration.
- Plan to get them a scan appliance or digital wax-up.

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Reconstruction clinic

Full arch case

Overview & referral information

Patient: _____ **Date of birth:** _____

Factors of concern:

☐ Smoking	☐ Anticoagulation	☐ Hx of TMD
☐ Diabetes	☐ Oral bisphosphonate Hx	☐ Tooth extraction necessary
☐ Alveolar height is limited	☐ Alveolar width is limited	☐ Other:

Terminal dentition secondary to the following:

Maxillary ☐ N/A	☐ Poor/hopeless periodontal prognosis: ☐ Poor/hopeless restorative prognosis: ☐ Prosthetic impediment:
Mandibular ☐ N/A	☐ Poor/hopeless periodontal prognosis: ☐ Poor/hopeless restorative prognosis: ☐ Prosthetic impediment:

Planned definitive prostheses & corresponding ideal restorative space:

Maxillary ☐ N/A	☐ Implant retained denture (Locator/Novaloc) [12 mm]. ☐ FP1 prostheses [10 mm]. ☐ FP3 prosthesis (monolithic) [14-15 mm]. ☐ Other:	**Prosthetically ideal number of implants:**
Mandibular ☐ N/A	☐ Implant retained denture (Locator/Novaloc) [12 mm]. ☐ FP1 prostheses [10 mm]. ☐ FP3 prosthesis (monolithic) [14-15 mm]. ☐ Other:	**Prosthetically ideal number of implants:**

Planned interim prostheses:

Maxillary ☐ N/A	☐ None ☐ Immediate denture. ☐ Delayed fabrication denture/scan appliance. ☐ Patient interested in same-day conversion to fixed (nSequence, Smile-in-a-box). ☐ Other:
Mandibular ☐ N/A	☐ None. ☐ Immediate denture. ☐ Delayed fabrication denture/scan appliance. ☐ Patient interested in same-day conversion to fixed (nSequence, Smile-in-a-box). ☐ Other:

☐ We have shared a HIPAA compliant OneDrive folder with the surgeon directly containing digital workup files.
☐ Please call and let us know who the surgeon is so we can send the digital workup files.

Version 2.0 | Updated Monday, March 13, 2023

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DENTURE ADJUSTMENTS POST-PLACEMENT

- I try to see the patient 0-14 days after placement to soft reline and/or selectively relieve their denture.
- Modification of removable prosthesis following implant surgery (D5875).

Image from ZestDent.com

FOLLOW-UP PROTOCOLS

- Periapical of all implant sites annually.
  - We track this with an automated ‘continuing care’ interval.
  - We schedule with bitewings for efficiency.
- Ask about occlusion, check with Accufilm/Shimstock often.
- Note presence/absence of BOP at recalls.

DEALING WITH LABORATORIES

- The more complicated the case, the more nuanced your laboratory prescription should be.
- Be direct in asking exactly for what you want.
- Insist onOEM parts request packaging.
- If it is not what you asked for, send it back.
- If it is not quality, send it back.

Questions?

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andy@grand.dental

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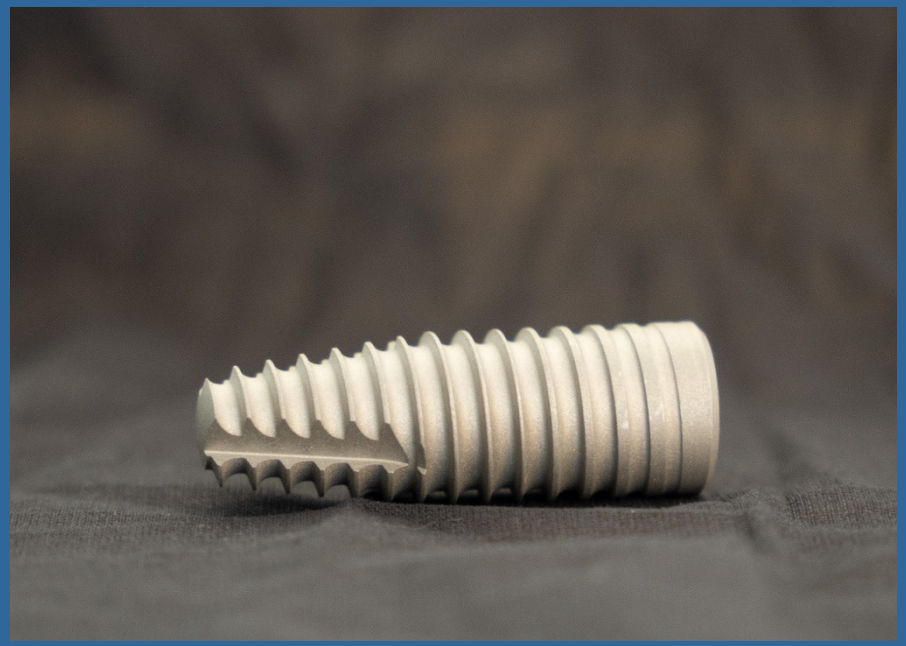

The Restorative Perspective

Prosthetic planning, managing the multi-disciplinary interface, & setting patient expectations.

Andy Stevenson D.D.S.
April 26, 2023

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