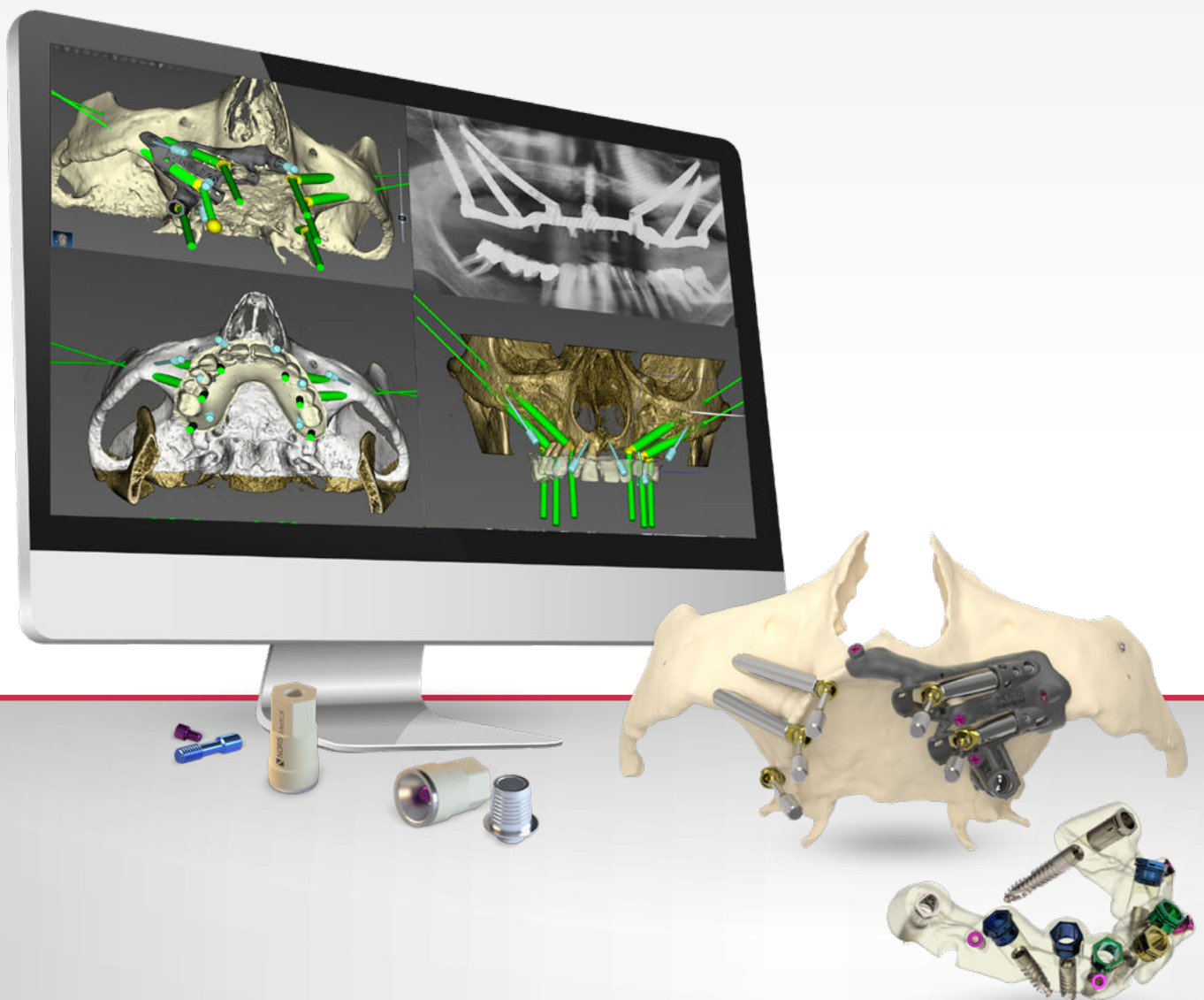




**NORIS Medical®**  
Dental Implant Solutions

# *Digital Solutions*

WE CAN MAKE IT EASY!



[norismedical.com](http://norismedical.com)

# NORIS DIGITAL SOLUTIONS FOR LABS AND DENTISTS

## WE CAN MAKE IT EASY!

Noris Digital provides complete workflow for your surgical guides so you can get the easiest solution to a beautiful smile.

Noris offers flexible and customized service that helps grow and develop your practice.

The digital solution provides more **Efficiency** by reducing chair-time with immediate treatment surgical protocol.

The digital workflow will increase your **Confidence** in implant placement with more **Predictable** results using advanced premium dental instrumentation combined with Guided Surgery.

**Simply make it easier for you!**



### SCANNING

Dentist sends Noris Digital the DICOM files



### PLANNING

Noris Digital provides consultation + treatment planning ABD



### DESIGNING

Noris Digital designs the EZguide™ or EZgoma®  
(Ti-premium OR Plastic-standard)



### PRINTING

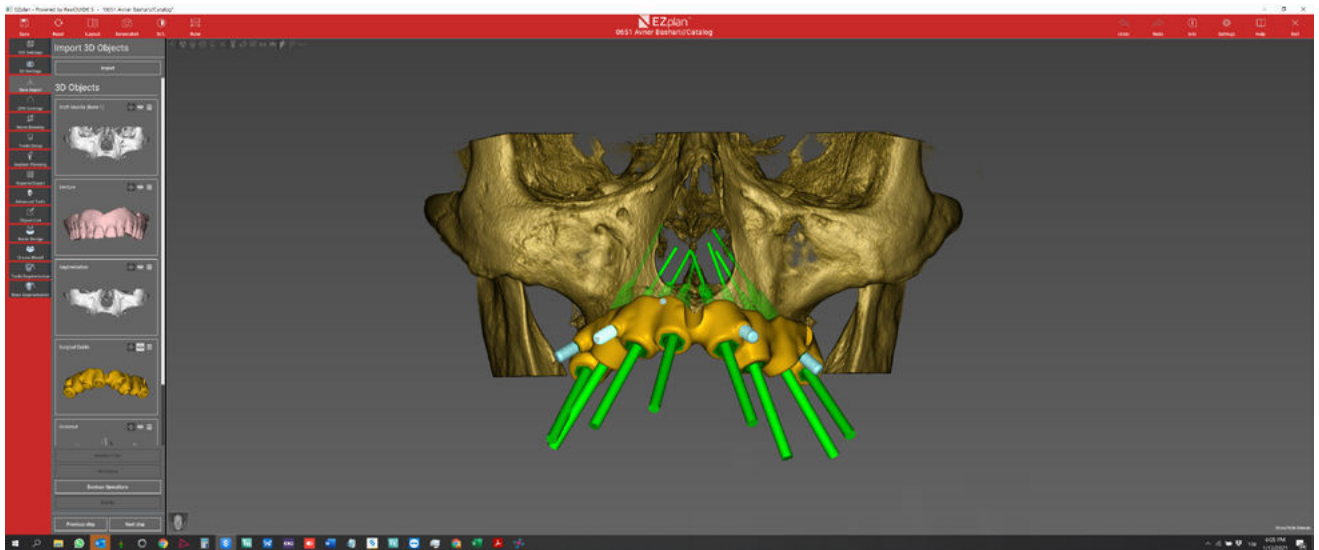
Noris Digital manufactures EZguide™ or EZgoma® and ship in an EZbox



### SURGICAL & PROSTHETICS CUSTOMIZED SOLUTIONS

To complete the easy solution, the advanced EZguide™ and EZgoma® Surgical Sets are available for your case

# *EASY PLANNING WITH EZplan*



## ***EZplan***

***SOFTWARE FOR IMPLANT POSITIONING  
AND SURGICAL GUIDES DESIGN.***

Dentist uses EZplan OR 3rd party software for planning  
(i.e. 3Shape, Exoplan, Simplant, etc.)

**Type of guides supported in the software:**

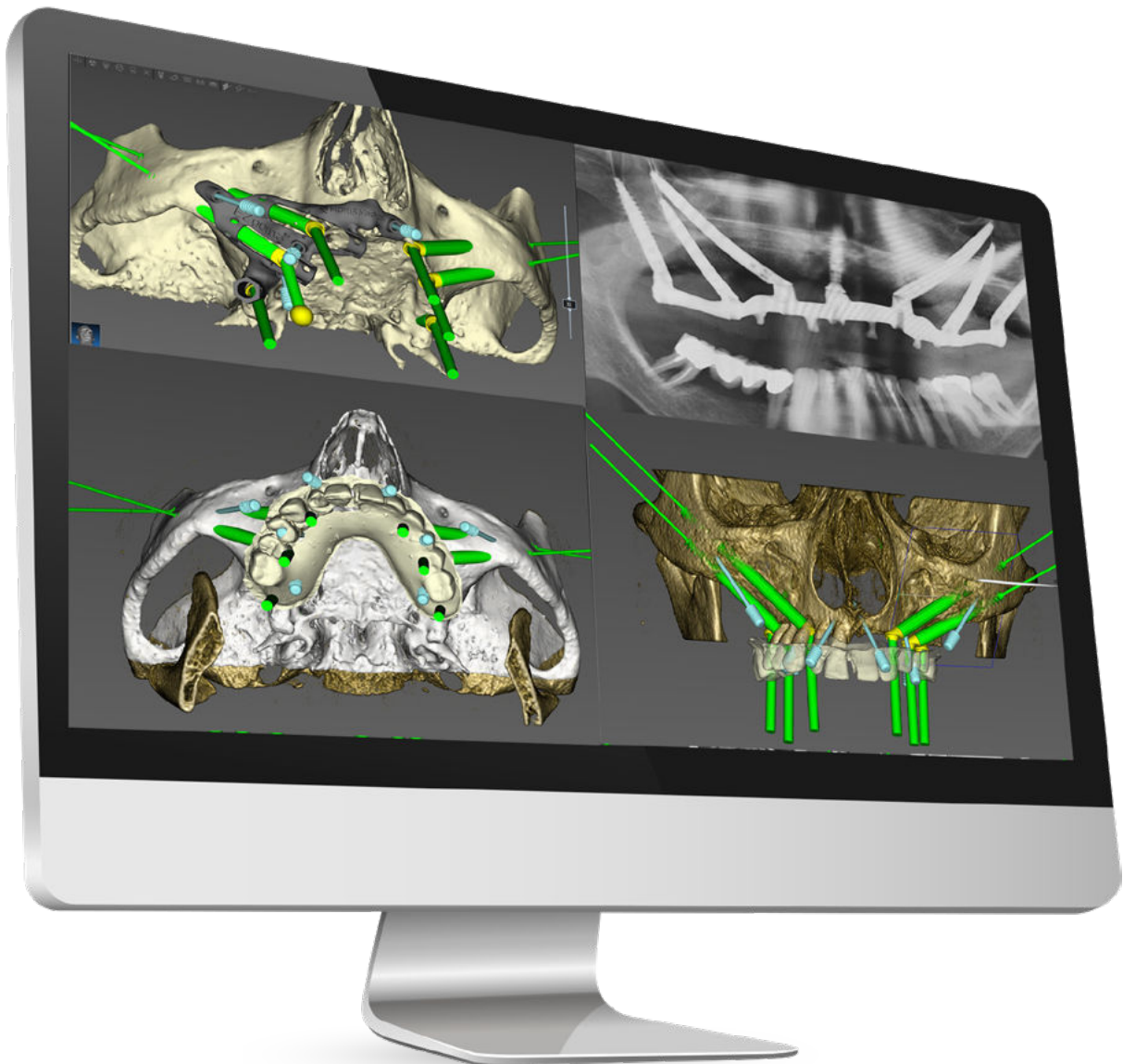
- ✓ ***TEETH SUPPORTED***
- ✓ ***SOFT TISSUE SUPPORTED***
- ✓ ***BONE SUPPORTED***

DIGITAL SOLUTIONS | EZgoma®

# EZgoma®

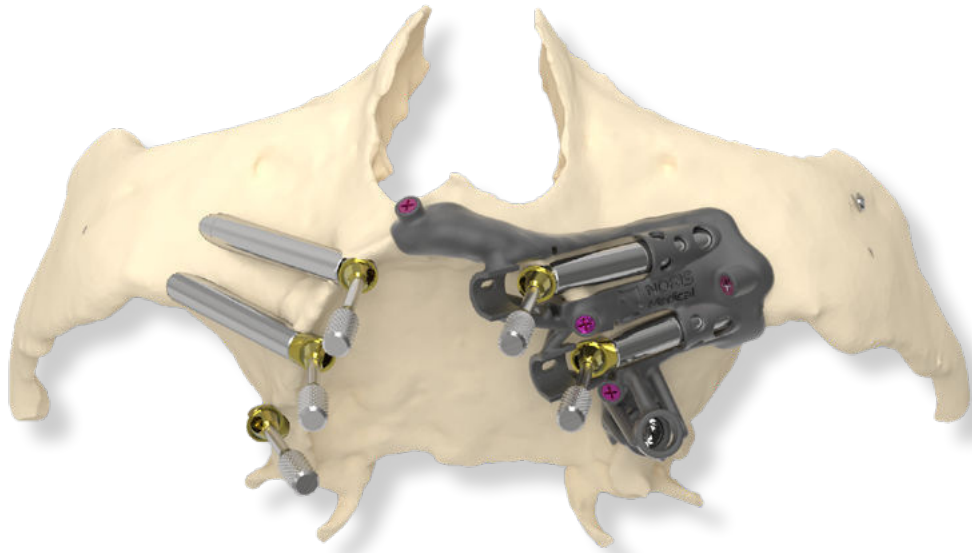
## THE FUTURE IS EASY

*Guided Surgery for Zygomatic  
and Pterygoid Implants*



# DIGITAL SOLUTIONS | EZgoma®

Let Noris Make the guide,  
so you can Go and execute the surgical work flow  
and have an "easy" case....EZgoma®



## OVERVIEW

EZgoma® is a pioneering patented guided surgery system, developed by Noris Medical to assist in complex zygomatic and pterygoid implant procedures.

For the first time, dental surgeons can plan the zygomatic and pterygoid implant procedure ahead of time and execute it precisely guided, based on the patient's CT scan, instead of conducting it in a blind free-hand style.

Using proprietary 3D software and the patient's CAT scan, we create a surgical guide made of Titanium, that fits Suitably onto the patient's Maxilla. Supported by the designated EZgoma® Surgical Set, the drilling process achieves the most precise procedure and results available to clinicians today.

## CHALLENGES ADDRESSED

Zygomatic and pterygoid implant surgeries are among the most complicated in the dental field and are normally conducted only by experienced and specialized dental surgeons.

Intended to address cases of severe bone loss and low bone quality, these implants bring a quality of life to patients who could never enjoy them before.

Nevertheless, these are challenging procedures that require placing long implants in the deeper areas of the skull, such as the cheekbones, in order to anchor and maintain the implant. It is therefore paramount that the surgeon conducts a procedure that is highly precise in order to ensure optimal results and to avoid complications such as nerve damage or puncturing of the eye.

## THE EZgoma® SURGICAL GUIDE CONSTRUCTION PROCESS

- The clinician obtains a CT scan of the patient's Maxilla according to preset protocols provided by Noris Medical, in order to generate a correct scan at the right field of view and resolution. The DICOM is then transferred to Noris Medical.
- The Noris Digital team, in cooperation with the referring clinician, evaluates the scan and analyzes the patient's condition. Utilizing the EZplan 3D software, the implants are planned according to the patient's anatomical attributes such as bone structure and density, location of nerve canals and position of future teeth reconstruction for excellent prosthetic outcome.
- In a case of an existing denture, it is scanned separately and imported in to the EZplan software to plan the placement of implants in reference to the actual denture teeth and their position in the mouth, ensuring a perfect fit.
- Once the plan is approved by the clinician, Noris fabricates a sturdy yet super thin Titanium-made EZgoma® guide. The guide itself contains grooves and marks for guiding the drill to the precise location, angle, and depth.
- After exposing the bone, the clinician positions the EZgoma® guide within the patient's Maxilla and secures it using special screws. During the procedure, the clinician is able to precisely drill the osteotomy to the preplanned location, angle, and depth. Following implants placement the Multi-Unit abutments are secured to the designated position prior to the removal of the guide. Once done, all that is left to do is suture the soft tissue and immediately load the adjusted/prefabricated denture.

## BENEFITS

- Innovative first of its kind solution
- Plan ahead of time for optimal results
- Unparalleled precision
- Increased safety and minimized surprises
- An easier procedure for both the patient and the surgeon
- A shorter operation/process.
- Increased confidence for both the clinician and patient
- Immediate Loading of prefabricated temporary bridge, due to expected precision.



# SETS | EZgoma® SURGICAL SET

## NM-X2230



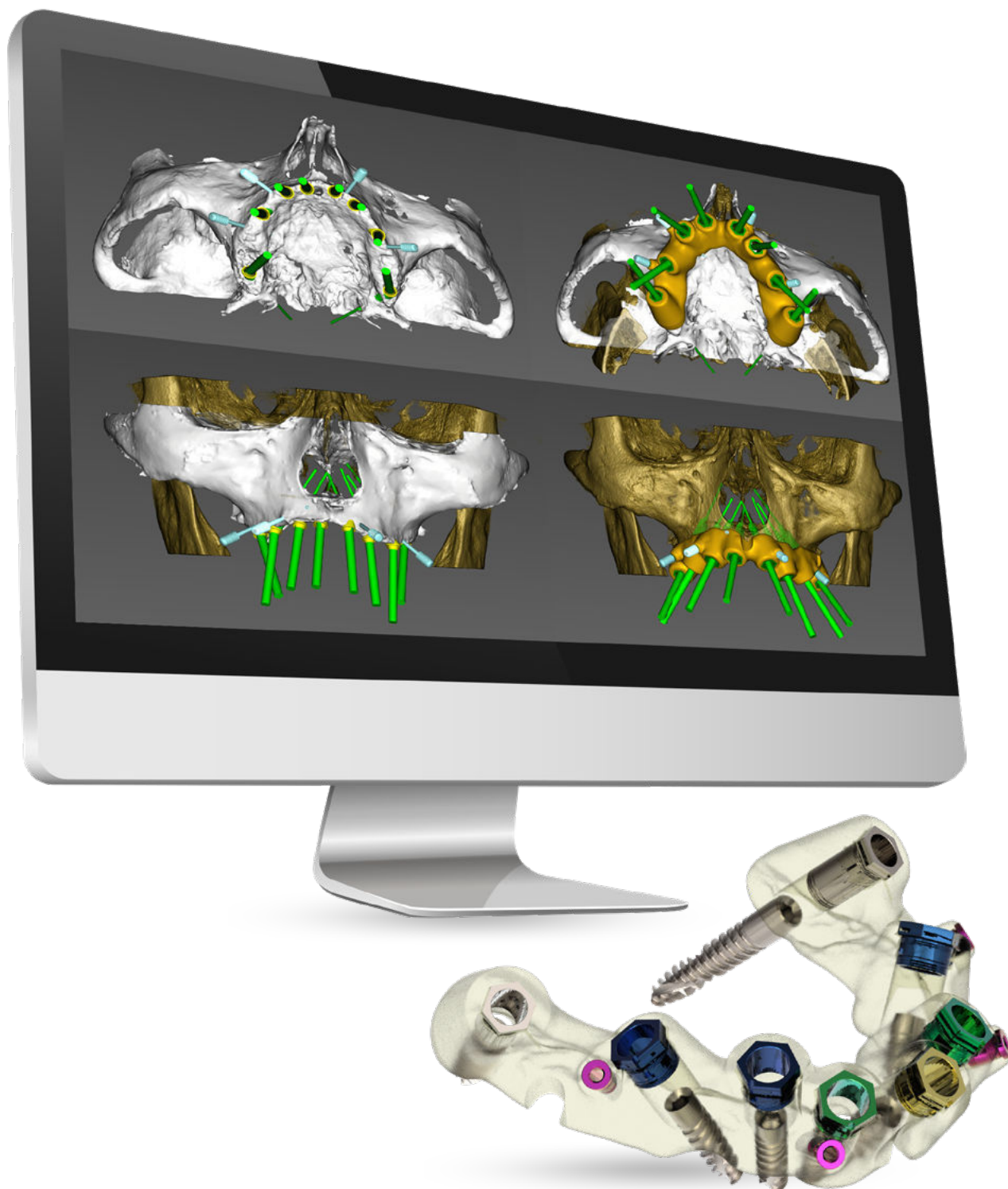
### :SURGICAL SET FOR EZgoma® NM-X2230 CONTAINS

|                                                |          |                                                 |          |
|------------------------------------------------|----------|-------------------------------------------------|----------|
| Bone Screw Drill, ø1.2, L28mm, Depth 8mm, SS   | NM-D2408 | Zygoma Drill-C2, L40mm, ø3.0, Step 20mm, SS     | NM-D7702 |
| Bone Screw Drill, ø1.2, L28.0mm, Depth 8mm SS  | NM-D2412 | Bone Screwdriver                                | NM-X1040 |
| Stop Drill, ø4.2, L15.0mm, SS                  | NM-D2515 | Mount, Bone Screwdriver, Star-Hex 1.25, L50, SS | NM-X1041 |
| Drill-Extension-SS                             | NM-D3412 | Driver Hex 2.4mm, L20.0mm, SS                   | NMHX2620 |
| Zygoma Drill-C2, L60mm, ø3.0, Step 20mm, SS    | NM-D7002 | Positioning pin for Driver, SS                  | NM-X2701 |
| Diamond Burr, ø4.2mm, L30mm, Coarse, Drill Tip | NM-D7211 | Extraction pin, SS                              | NM-X2702 |
| Diamond Burr, ø4.2mm, L40mm, Coarse, Drill Tip | NM-D7212 | Driver Hex 2.4mm, Dia 4.2mm, L10mm, SS          | NM-X2710 |
| Diamond Burr, ø5.2mm, L10mm                    | NM-D7221 | Driver Hex 2.4mm, Dia 4.2mm, L15mm, SS          | NM-X2715 |
| Diamond Burr, ø5.2mm, L15mm                    | NM-D7222 | Driver Hex 2.4mm, Dia 4.2mm, L20mm, SS          | NM-X2720 |
| Diamond Burr, ø5.2mm, L20mm                    | NM-D7223 | Motor Mount, Star-Hex 1.25mm, L25.0mm, SS       | NM-X7009 |
| Stopper Drill, ø2.8, Std, L40.0mm, SS          | NM-D7328 | Motor Mount Hex 2.42, L28.0mm, Self Holding, SS | NMHX1015 |
| Diamond Ball Burr, ø4.2mm, L30mm               | NM-D7501 | Drill Stopper,ID ø4.2, IL10.0mm, SS             | NMSD2510 |
| Zygoma Drill-C1, L40mm, ø4.2, SS               | NM-D7542 | Drill Stopper,ID ø2.8, IL18.0mm, SS             | NMSD7318 |
| Zygoma Drill-C2, L50mm, ø3.0, Step 20mm, SS    | NM-D7602 | Drill Stopper,ID ø2.8, IL20.0mm, SS             | NMSD7320 |
| Zygoma Drill-C1, L50mm, ø4.2, SS               | NM-D7642 | Drill Stopper,ID ø2.8, IL22.0mm, SS             | NMSD7322 |
| Zygoma Drill-C2, L40mm, ø3.0, Step 10mm, SS    | NM-D7701 | Drill Stopper,ID ø2.8, IL25.0mm, SS             | NMSD7325 |
|                                                |          | Diamond Burr, ø5.2mm, Dia 3mm Adapter           | NMXD7220 |

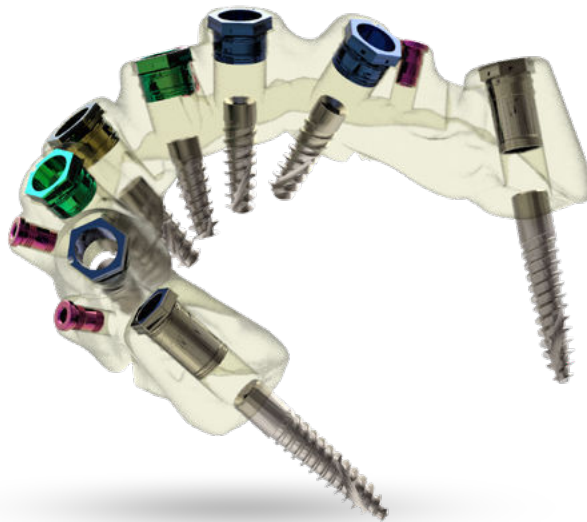
DIGITAL SOLUTIONS | EZguide™

# EZguide™

*Surgery Guide*







## OVERVIEW

EZguide™ is an easy yet innovative approach to guided surgery.

Noris Medical developed this system to assist in “day to day” placement of “routine” and pterygoid implant procedures. A simple to use surgical set allows the predictability of immediate loading with the efficiency of a short and error-proof workflow.

The EZguide™ surgical set allows the full capabilities of all guide types: From pilot drilling to fully guided implant loading, for bone, tissue, or teeth supported guides.

The EZguide™ surgical kit is suitable for tapered or cylindrical implants and is the only guided surgical set to include the ability to place pterygoid implants - Fully guided in the same set.

Supported by top-notch implant planning and surgical guide software, the EZplan™ software permits modular capabilities for seamless communication between the clinician and the laboratory for implants placement and design for surgical guides. The EZplan™ is used for all of Noris Medical’s Internal Hex implants and can be used in-house or outsourced by the Noris Digital Team.

## CHALLENGES ADDRESSED

With the broad portfolio of implants Noris Medical offers, it is crucial to have one guided surgical instrumentation set that is able to support it all.

The guided surgical set will control the location, orientation, and the final position of the implant. Maximum precision and accuracy is paramount in order to fabricate and deliver a prosthesis immediately on the day of surgery.

It is optimal to achieve the above with the shortest, most efficient workflow and minimal error. A synergy of software instruments is needed to eliminate human error prior to and during surgery as well as have the ability to design the precise prosthetics for immediate load. All using a digital workflow.

# DIGITAL SOLUTIONS | EZguide™

Simple drilling protocol is a challenging mission to achieve, especially when it comes to pterygoids and very long implants for tilted implants approach. The EZguide™ guided surgical set, offers simple and spoon-less drills and step-drills, enables the shortest drilling steps to achieve a Suitable tapered osteotomy from 6mm to 18mm implant length, and from 3.3mm to 5mm implant diameter.

In order to reduce human errors to a minimum, it is essential to keep the clinician's attention at the surgical site throughout the entire procedure. The printed drilling protocol on the EZguide™ guided surgical set tray, along with color-coded sleeves inside the guide, enables the dentist an efficient and Machined operation, obviating the need to jump back and forth from the printed protocol to the surgical site.

## BENEFITS

- Universal guided surgical set for Internal Hex implants
- The first and only fully guided set to include pterygoid solution
- Unparalleled precision for 6-18mm implants
- Increased safety and minimized human errors due to color coding
- An easier procedure for both for the patient and the surgeon
- Increased confidence for both the clinician and patient
- Immediate Loading of prefabricated temporary bridge, due to expected precision and implant's depth/orientation control mounted through the guide

# SETS | EZguide® SURGICAL SET

## NM-X2240



### SURGICAL SET FOR EZguide® NM-X2240 CONTAINS:

|          |                                                         |
|----------|---------------------------------------------------------|
| NMBD2132 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L21.5mm, SS.  |
| NMBD2332 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L23.0mm, SS.  |
| NMBD2632 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L26.0mm, SS.  |
| NMBD1636 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L16.0mm, SS. |
| NMBD1836 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L18.0mm, SS. |
| NMBD2036 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L20mm, SS.   |
| NMBD2136 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L21.5mm, SS. |
| NMBD2336 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L23.0mm, SS. |
| NMBD2636 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L26.0mm, SS. |
| NMBD1642 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L16.0mm, SS. |
| NMBD1842 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L18.0mm, SS. |
| NMBD2042 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L20mm, SS.   |
| NMBD2142 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L21.5mm, SS. |
| NMBD2342 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L23.0mm, SS. |
| NMBD2642 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L26.0mm, SS. |
| NMBD1648 | EZguide Stop Drill, $\phi 4.8/\phi 4.0$ , L16.0mm, SS.  |
| NM-X2851 | EZguide, Driver 2.42, $\phi 5.0$ , L10, Long, SS.       |
| NM-X2802 | EZguide, Driver Extraction Screw, 27.5mm, Ti.           |
| NM-X2852 | EZguide, Mono Driver, $\phi 5.0$ , L10, SS.             |
| NM-X1013 | Motor Mount, Hex 4.7, for EZguide Drivers, SS.          |
| NM-X1113 | Driver Extender to EZguide Drivers, Hex 4.7, SS.        |
| NM-X1215 | Driver Hex 1.25mm, L15.0mm, SS.                         |
| NM-X2902 | EZguide Fixation Pin, $\phi 1.9$ , L20, SS              |
| NM-X2910 | EZguide Oclusal Fixation Screw, D5.0, L10, SS           |
| NM-X1021 | Torque Ratchet                                          |

### OPTIONAL DRILLS FOR 18mm IMPLANTS

|          |                                                         |
|----------|---------------------------------------------------------|
| NMBD2820 | EZguide Stop Drill, $\phi 2.0$ , L28.0mm, SS.           |
| NMBD2828 | EZguide Stop Drill, $\phi 2.8$ , L28.0mm, SS.           |
| NMBD2832 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L28.0mm, SS.  |
| NMBD2836 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L28.0mm, SS. |

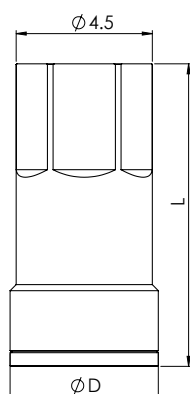
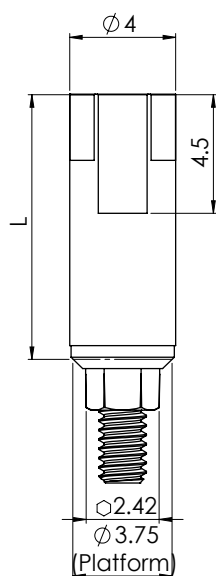
### OPTIONAL PTERYGOID IMPLANTS INSTRUMENTS

|          |                                                         |
|----------|---------------------------------------------------------|
| NM-X7228 | Spoon ID 2.8, OD 4.2, L12.0, No Sholder, SS.            |
| NM-D2642 | Tissue Punch, $\phi 4.4$ , L15, SS.                     |
| NM-D3352 | Bone Mill, $\phi 4.2$ , L15, SS.                        |
| NM-D7328 | Stopper Drill, $\phi 2.8$ , Std, L40.0mm, SS.           |
| NMSD7318 | Drill Stopper ,ID $\phi 2.8$ , IL18.0mm, SS.            |
| NMSD7320 | Drill Stopper ,ID $\phi 2.8$ , IL20.0mm, SS.            |
| NMSD7322 | Drill Stopper ,ID $\phi 2.8$ , IL22.0mm, SS.            |
| NMSD7325 | Drill Stopper ,ID $\phi 2.8$ , IL25.0mm, SS.            |
| NM-X2841 | EZguide, Driver 2.42, $\phi 5.0$ , L15, Pterygoid, SS.  |
| NM-X2803 | EZguide, Driver Extraction Screw, 32.5mm, Ti.           |
| NMBD2142 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L21.5mm, SS. |
| NMBD2332 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L23.0mm, SS.  |
| NMBD2336 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L23.0mm, SS. |
| NMBD2342 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L23.0mm, SS. |
| NMBD2632 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L26.0mm, SS.  |
| NMBD2636 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L26.0mm, SS. |
| NMBD2642 | EZguide Stop Drill, $\phi 4.2/\phi 3.65$ , L26.0mm, SS. |
| NMBD2832 | EZguide Stop Drill, $\phi 3.2/\phi 2.8$ , L28.0mm, SS.  |
| NMBD2836 | EZguide Stop Drill, $\phi 3.65/\phi 3.2$ , L28.0mm, SS. |




# CAD/CAM COMPONENTS | VERSATILE SCAN ABUTMENTS



|                   |                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGN FEATURES   | <ul style="list-style-type: none"> <li>• Metal base and PEEK body</li> <li>• Three optional lengths</li> <li>• Implant and Multi-unit</li> </ul>                                                                                                                                                                                                          |
| CLINICAL BENEFITS | <ul style="list-style-type: none"> <li>• Scan as is.<br/>No need for anti-reflective coating spray</li> <li>• For use intraorally or with tabletop scanners.</li> <li>• High accuracy</li> <li>• Durable</li> <li>• Autoclavable</li> <li>• Radiopaque fit confirmation to implant/multi-unit</li> <li>• Fit various depth of Gingival tissue.</li> </ul> |
| MATERIAL          | <ul style="list-style-type: none"> <li>• Base: Titanium Alloy (Ti-6Al-4V ELI)</li> <li>• Body: PEEK</li> </ul>                                                                                                                                                                                                                                            |






## ORDERING INFORMATION

| Scan Bodies                                                                         | Ø D (mm) | L     | Ref. No  |
|-------------------------------------------------------------------------------------|----------|-------|----------|
|  | 4.0 mm   | 7 mm  | NM-C9007 |
|  | 4.0 mm   | 10 mm | NM-C9010 |
|  | 4.0 mm   | 13 mm | NM-C9013 |
| Scan post                                                                           |          |       | Ref. No  |



NM-C2231

| Scan Bodies                                                                         | Ø D (mm) | L     | Ref. No  |
|-------------------------------------------------------------------------------------|----------|-------|----------|
|  | 4.9 mm   | 7 mm  | NM-C9207 |
|  | 4.9 mm   | 10 mm | NM-C9210 |
|  | 4.9 mm   | 13 mm | NM-C9213 |

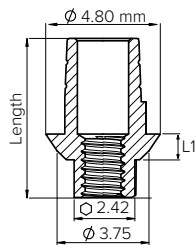
Replacing NM-C9107, NM-C9110, NM-C9113


# CAD/CAM COMPONENTS | TI-BASES FOR INTERNAL HEX IMPLANTS

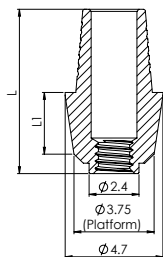





|                   |                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGN FEATURES   | <ul style="list-style-type: none"> <li>• Anti-rotational and non-engaging design</li> <li>• Range of Gingival heights</li> </ul>                                                  |
| CLINICAL BENEFITS | <ul style="list-style-type: none"> <li>• Cement retained abutments</li> <li>• Gingival Collar height selection</li> <li>• Range of emergence profiles abutment options</li> </ul> |
| MATERIAL          | <ul style="list-style-type: none"> <li>• Titanium Alloy (Ti-6Al-4V ELI)</li> </ul>                                                                                                |


## ORDERING INFORMATION



| Single Unit Titanium Base for Crown                                                 | Ø D (mm) | L (mm) | L1 (mm) | Ref. No  |
|-------------------------------------------------------------------------------------|----------|--------|---------|----------|
|    | 4.8      | 4.5    | 0.7     | NM-C2201 |
|    | 4.8      | 6.0    | 2       | NM-C2212 |
|   | 4.8      | 7.0    | 3       | NM-C2213 |
|  | 4.2      | 6.8    | 0.3     | NM-C2230 |



| Non-Hexed Titanium Base for Bridge                                                  | Ø D (mm) | L (mm) | L1 (mm) | Ref. No  |
|-------------------------------------------------------------------------------------|----------|--------|---------|----------|
|  | 4.8      | 5.5    | 0.6     | NM-C2202 |
|  | 4.8      | 6.9    | 2       | NM-C2222 |
|  | 4.8      | 7.9    | 3       | NM-C2223 |

|                                                                                     |                                                    |                  |
|-------------------------------------------------------------------------------------|----------------------------------------------------|------------------|
|  | Included with all abutments & available separately | Ref. No NM-S8324 |
|-------------------------------------------------------------------------------------|----------------------------------------------------|------------------|



Noris Medical's CAD/CAM libraries are available for the following software: Exocad, 3Shape and Dental Wings. The most current libraries can be found in Noris Medical's website.

exocad

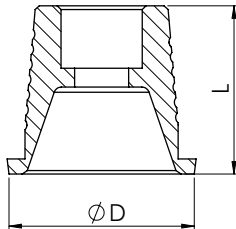
3shape

dental wings



# CAD/CAM COMPONENTS |

## TI-BASES FOR MULTI-UNIT



### DESIGN FEATURES




Ti-Bases provide a connection for customized digital restorations. The Ti-Base is cemented to the prosthetic ensuring suitable connection to the implant/multi-unit.

- Only for screw retained restorations
- Large bonding surface for stability and reliable adhesion

### MATERIAL

Titanium Alloy (Ti-6Al-4V ELI)

### ORDERING INFORMATION

| Multi-Unit Titanium Base                                                            | Ø D (mm)                    | L (mm)  | Ref. No          |
|-------------------------------------------------------------------------------------|-----------------------------|---------|------------------|
|    | 4.9                         | 4.5     | NM-C7124         |
| Multi-Unit Titanium Base for Immediate Loading                                      | Ø D (mm)                    | (L (mm) | Ref. No          |
|  | 5.2                         | 4.5     | NM-C7126         |
|  | Included with all abutments |         | Ref. No NM-S7102 |



Noris Medical's CAD/CAM libraries are available for the following software: Exocad, 3Shape and Dental Wings. The most current libraries can be found in Noris Medical's website.

**exocad**

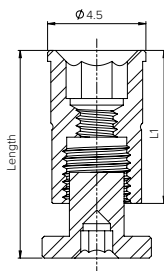
**3shape**


**dental wings**

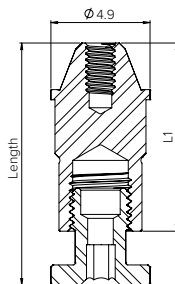
# CAD/CAM COMPONENTS | DIGITAL ANALOG


|                   |                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| DESIGN FEATURES   | <ul style="list-style-type: none"> <li>• Analog body and screw</li> <li>• Implant and multi-unit</li> </ul>                             |
| CLINICAL BENEFITS | <ul style="list-style-type: none"> <li>• Accurate and decisive fit in printed model</li> <li>• Removable</li> <li>• Reusable</li> </ul> |
| MATERIAL          | <ul style="list-style-type: none"> <li>• Body: Stainless Steel</li> <li>• Screw: Titanium Alloy (Ti-6Al-4V ELI)</li> </ul>              |

## ORDERING INFORMATION



| Digital Analog                                                                    | Ø D (mm) | L (mm) | L1 (mm) | Ref. No  |
|-----------------------------------------------------------------------------------|----------|--------|---------|----------|
|  | 4.5      | 9.5    | 7       | NMDT6004 |



| Digital Analog for Multi-Unit                                                       | Ø D (mm) | L (mm) | L1 (mm) | Ref. No  |
|-------------------------------------------------------------------------------------|----------|--------|---------|----------|
|  | 4.9      | 12     | 9       | NMDT7151 |



Noris Medical's CAD/CAM libraries are available for the following software: Exocad, 3Shape and Dental Wings. The most current libraries can be found in Noris Medical's website.

**exocad**

**3shape**

**dental wings**

# CLINICAL CASE N<sup>o</sup>1

## ***Full Arch Case of Severe Atrophic Maxilla using the EZgoma® - Zygomatic Guided Technology***

Surgeon: **Prof. Ziv Mazor**

Lab Tech: **Gustavo Skladnik** (DentexLab)

Surgery and Digital Planning: **Noris Medical Digital Department**

*EZgoma® - Zygomatic Guided Technology enabling a quick precise minimally invasive Extra Maxillary and Intra Sinus drilling protocol execution for Zygomatic implants placement as well as Pterygoid and regular implants.*

*All components, Implants, and Prosthetics are directed by the guide to an accurate pre-planned position and orientation.*

## INTRODUCTION

Freehand execution of Zygomatic and Pterygoid implants require special knowledge skills and experience.

Unlike ridge related angles for regular implantation, Zygomatic implants angles are related to the Inferior Orbital rim, alveolar ridge, the maxillary sinus lateral wall and the Zygomatic bone itself. Pterygoid Implants angle trajectory is related to the tuberosity, the maxillary sinus and the medial plate of the sphenoid bone.

Both procedures are 3D angle trajectory-based and are challenging to perform.

Noris Medical EZgoma® (Patented) Guided technology enables a time-saving and accurate execution for the most complicated atrophic maxilla cases.

*Noris Medical Zygomatic Implants and instrumentation greatly simplifies the Drilling Protocol and Implant and Prosthetic placement. High torque is consistently achieved, allowing immediate placement of a screw-retained prosthesis.*

## CLINICAL CASE

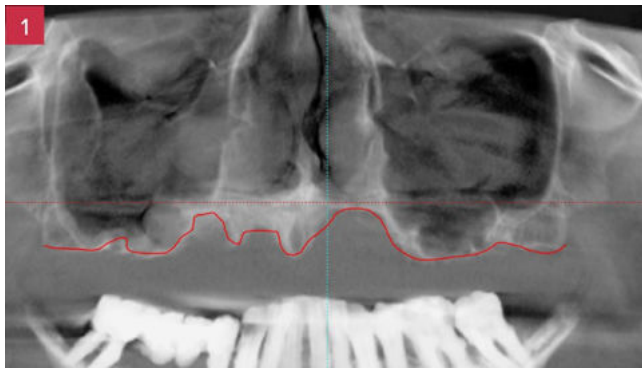
Female patient, 60 years old without major systemic disease.

Having edentulous atrophic maxilla[1], the maxilla presents severe bone resorption with defects in the area around the nasal spine, severe posterior ridge bone loss and narrow Zygomatic bone.

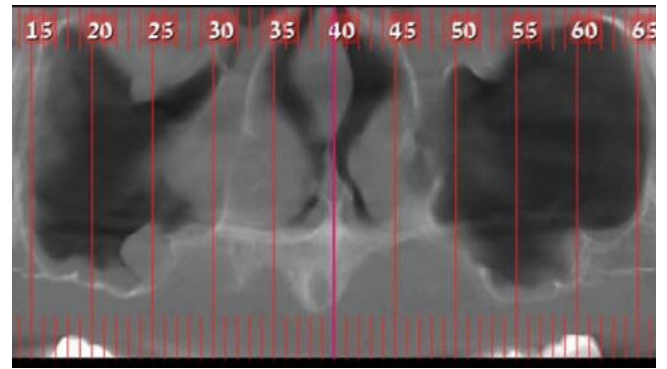
A Pre-op E.N.T specialist evaluation advised performing a FESS (Function Endoscopic Sinus Surgery) operation. The procedure was performed 3 months before the surgery [1.1]

According to the clinical and radiographic examination CBCT, it was decided to install two Zygomatic implants and one Pterygoid on each side and one Lateral narrow implant in a lateral position for Screw-retained Prosthetic Rehabilitation. The procedure is done guided, Lateral implant will be placed freehand.

## Planning Procedure

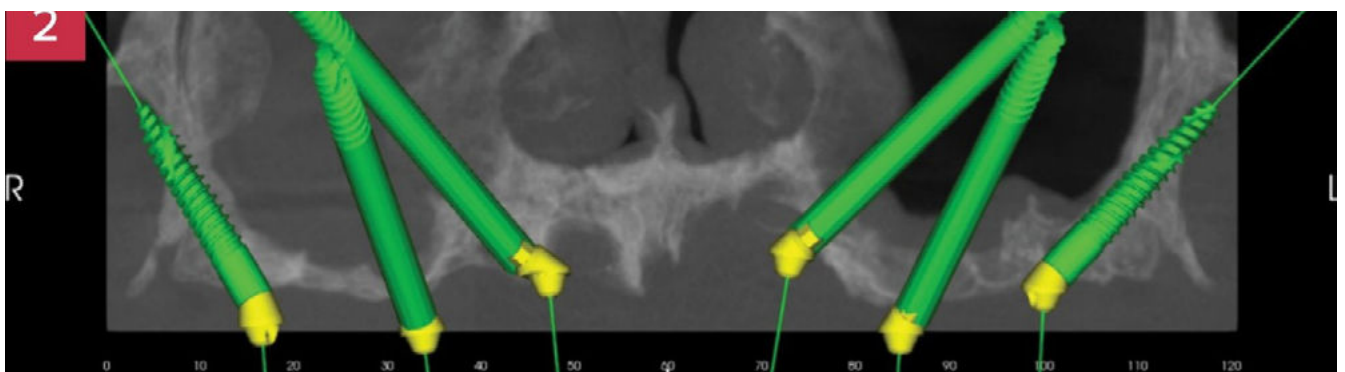


[1] Severe edentulous atrophic maxillary bone situation



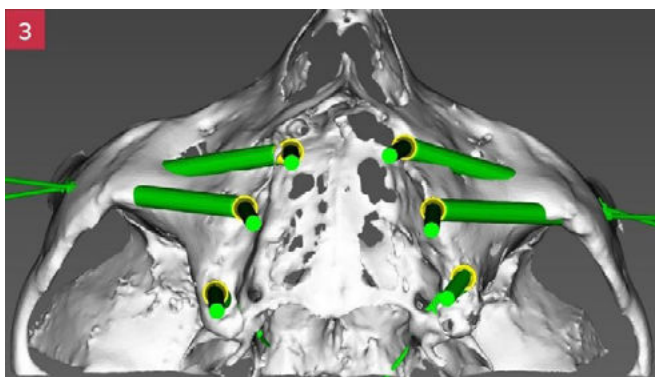
[1.1] Post-op fess (function endoscopic sinus surgery) operation 3 month prior to surgery.

*Surgery planning was done using the CT dicom that was available prior to the FESS operation.*

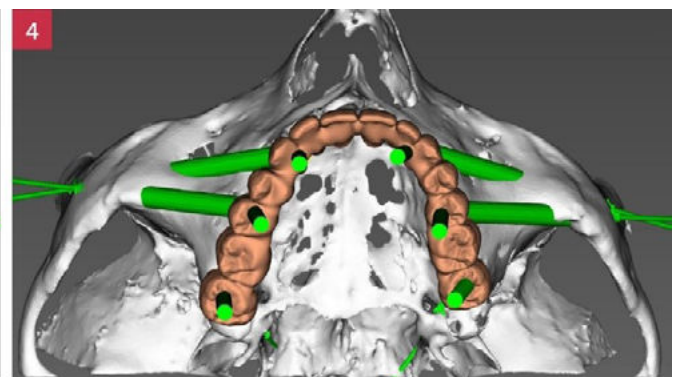


[2-3] Zygomatic and Pterygoid implants planned positions

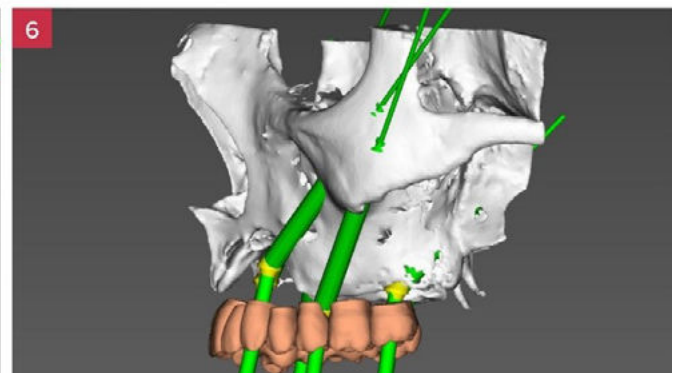
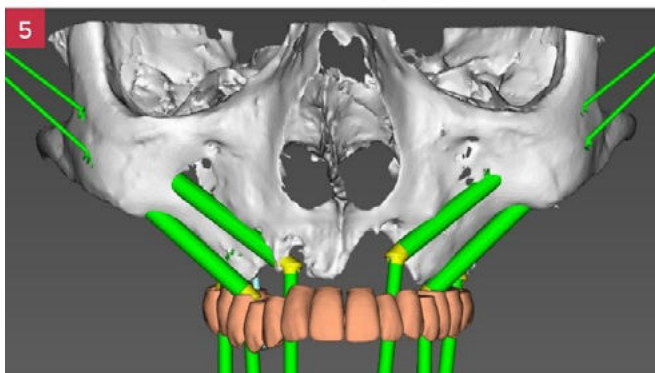
[4-6] Implant positions are planned to support the desired screw-retained rehabilitation



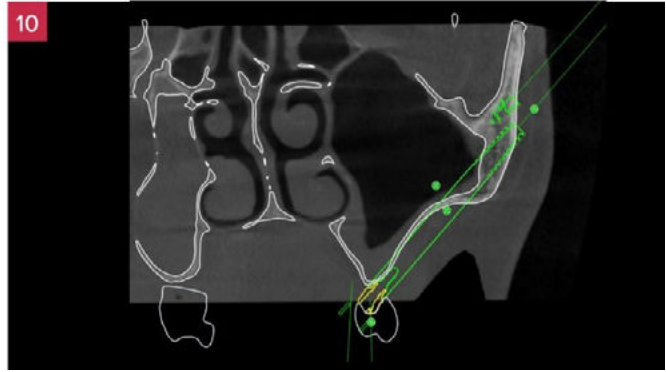
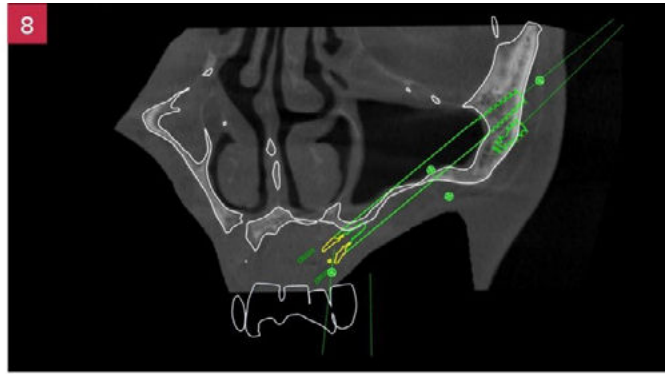
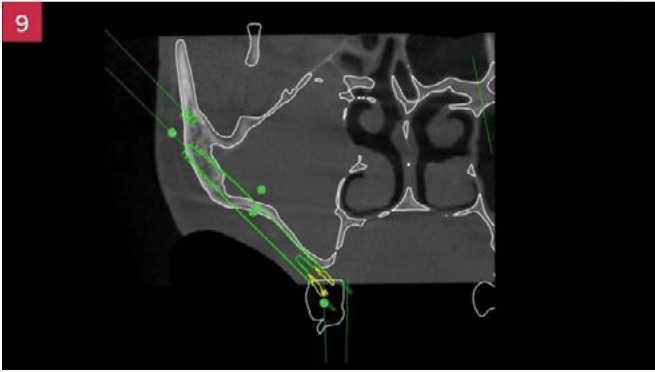
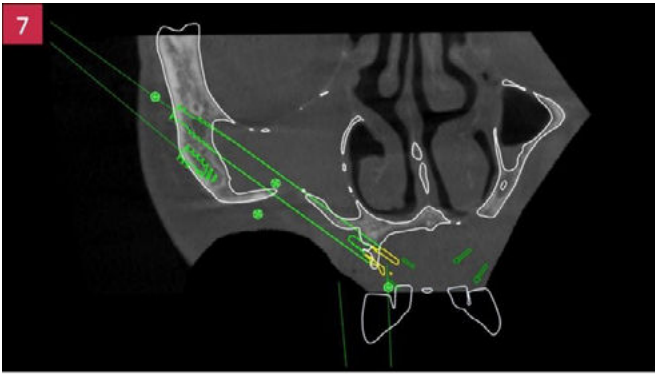
[2-3] Zygomatic and Pterygoid implants planned positions



[4-6] Implant positions are planned to support the desired screw-retained rehabilitation







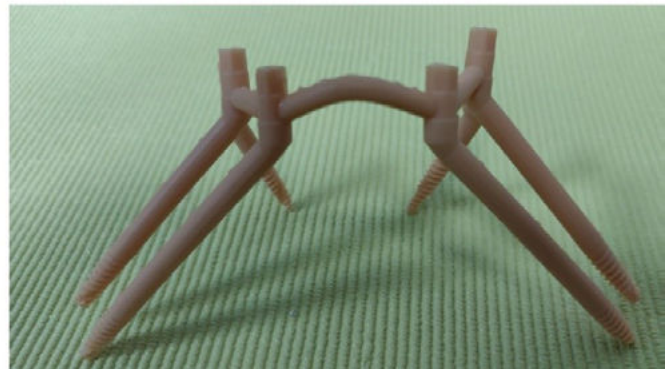
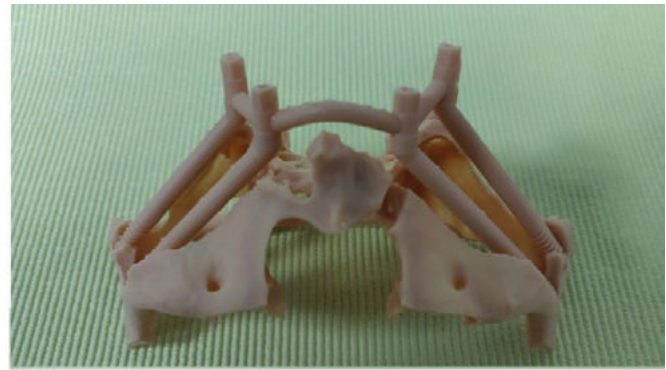
[7] Implant Position 13

[8] Implant Position 23

[9] Implant Position 15

[10] Implant Position 25

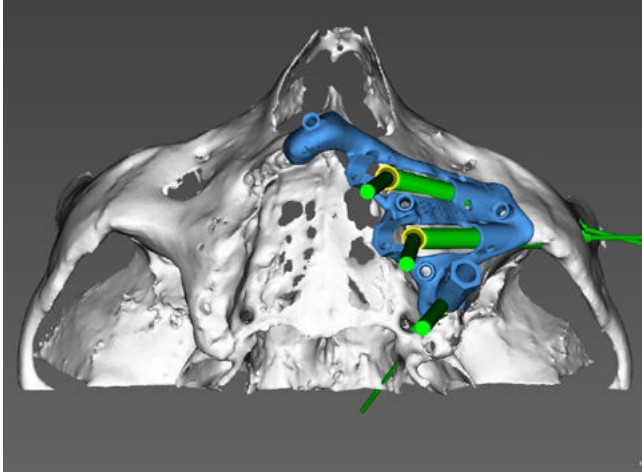
When analyzing the implant positioning it can be seen that the zygomatic bone in each position is relatively short (Between 9 to 11 mm) and the alveolar ridge excluding position 15 is completely atrophic, such a bone structure cannot support an individual zygomatic Implant. However, when all implants are connected by a rigid bar the construction is solid and can carry the load.





## EZgoma® GUIDE

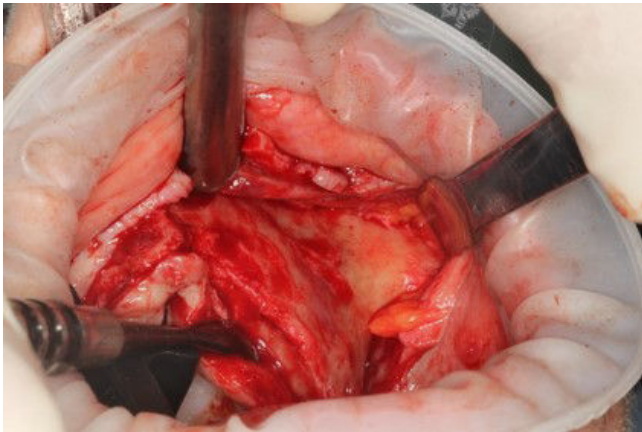
Based on the implants positioning design, an individual guide is planned for each side, right and left, enabling a good insertion path with minimum undercuts. the guides enable positioning the implants through it to the correct position and prosthetic orientation.



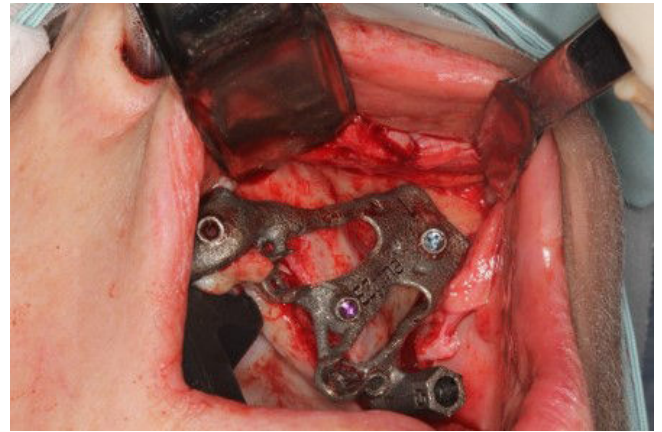
## EZgoma® TITANIUM SURGERY GUIDES



## SURGICAL PROCEDURE



Raising the flap



Positioning and Guide Fixation

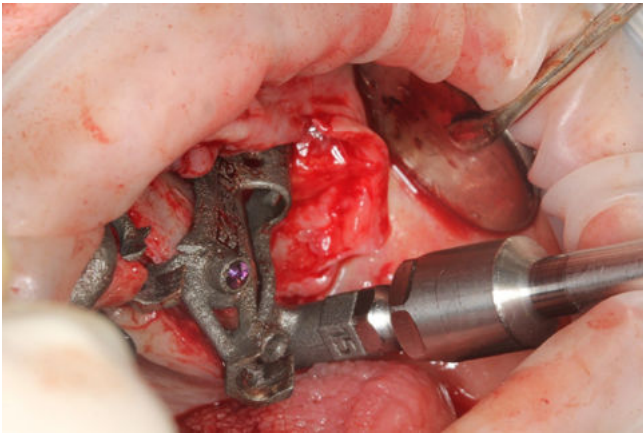


Drilling osteotomy for Pterygoid Implant

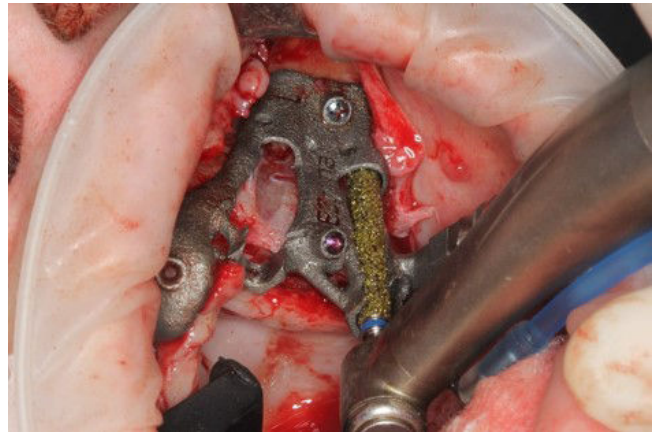


Pterygoid insertion - Noris PteryFit implant length 25mm

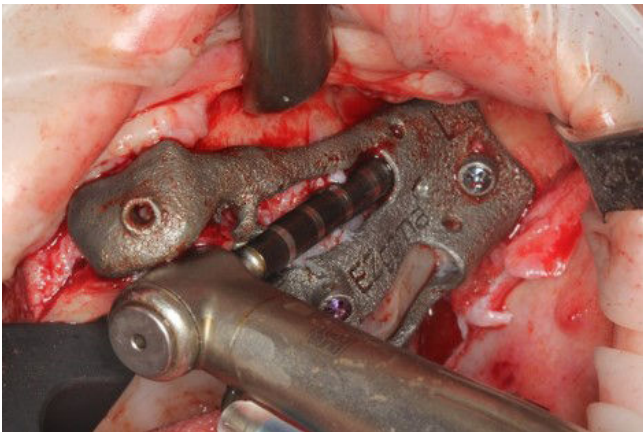




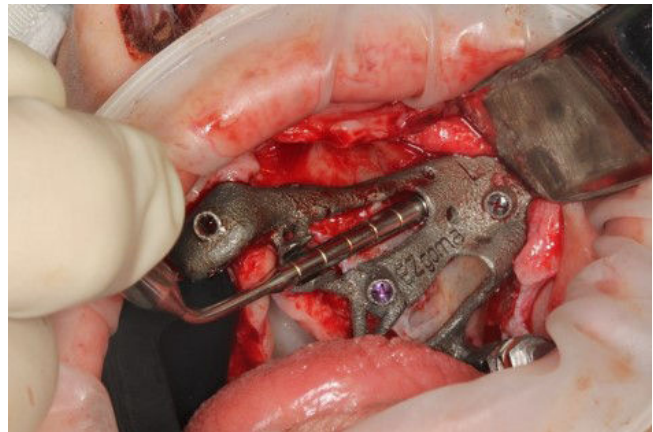
Pterygoid implant positioning and orientation is defined by the alignment of the driver Hex to the guide sleeve Hex



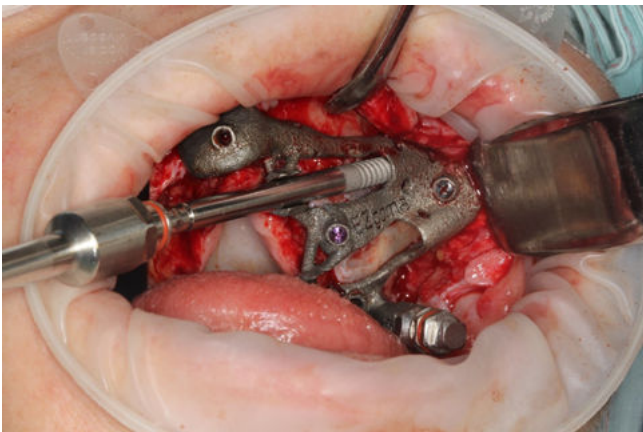
Grooving the Maxillary sinus lateral wall by using a diamond burr



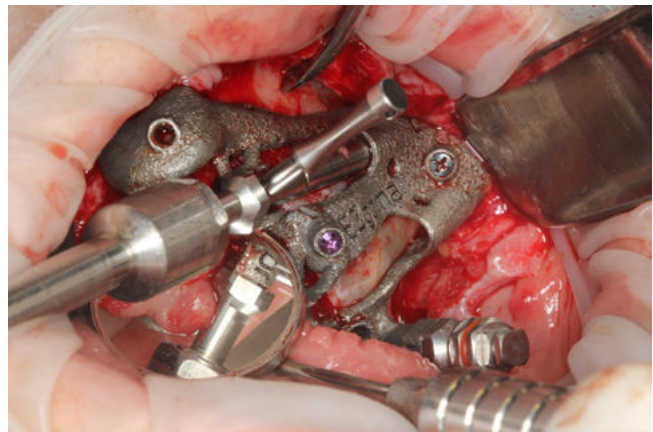
Drilling osteotomy for the Zygomatic Implant



Verification measurement of pre-planned Implant length



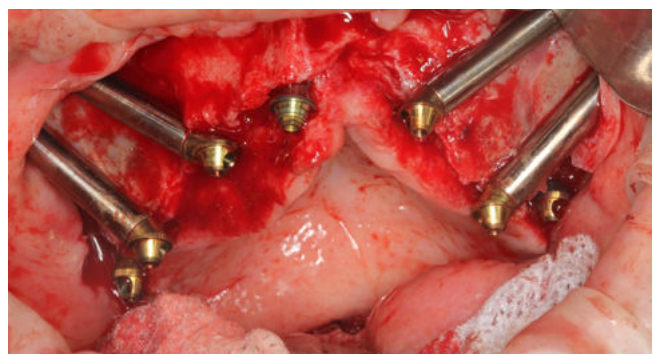
Insertion of Zygomatic implant



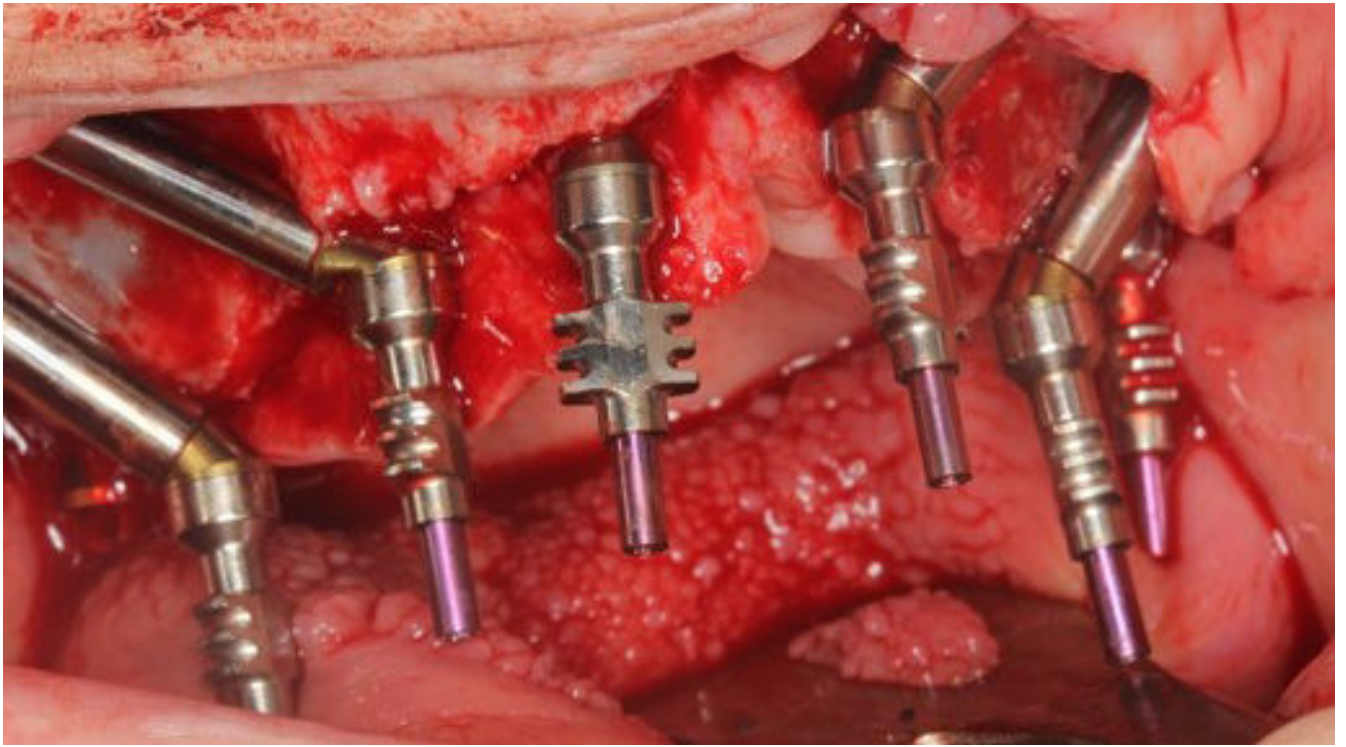
The zygomatic implant is entered through the guide. Positioning and orientation are defined by the alignment of the driver Hex and the guide Hex. A control pin will verify the correct position



Multi-Units placement







Transfers on the Multi-Units for open tray impression



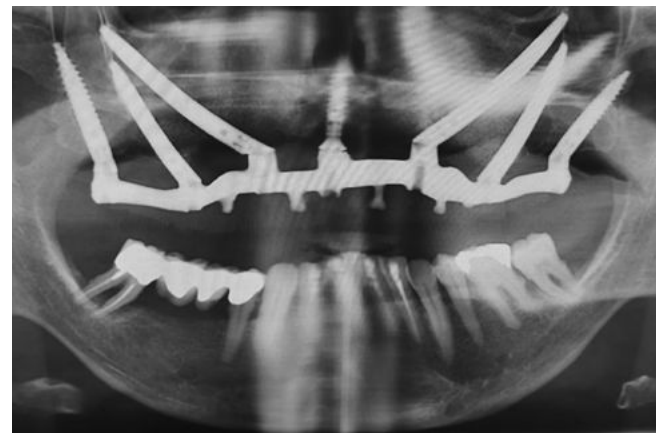
Transfers on the Multi-Units for open tray impression



Preparation of a Titanium bar for rigid based restoration



Restoration Delivery



Post-operative X-Ray

# CLINICAL CASE N°2

## ***Guided Zygomatic and Pterygoid Implants using EZgoma®***

Surgeon: **Dr. Roman Mirochnik**

Surgery and Digital Planning: **Noris Medical Digital Department**

*EZgoma® - Zygomatic Guided Technology enabling a quick precise minimally invasive Extra Maxillary and Intra Sinus drilling protocol execution for Zygomatic implants placement as well as Pterygoid and regular implants.*

*All components, Implants, and Prosthetics are directed by the guide to an accurate pre-planned position and orientation.*

## INTRODUCTION

Limited bone quality in the posterior maxilla results in low success rates for dental implants. Various bone augmentation methods have been described, yet most require two-step surgical procedures with relatively high rates of resorption and failure. An alternative for these patients is zygomatic implants. Zygomatic implants utilize the basal craniofacial bone.

Guided Technology enables a quick, precise and minimally invasive Extra Maxillary and Intra Sinus drilling protocol execution for Zygomatic implants placement as well as Pterygoid and regular implants.

As a result of the introduction of computer software technology that integrates the information from various 3D imaging tools, the clinician is provided with a major revolution in virtual implant treatment planning that takes into consideration both surrounding vital anatomic structures and prosthetic requirements.

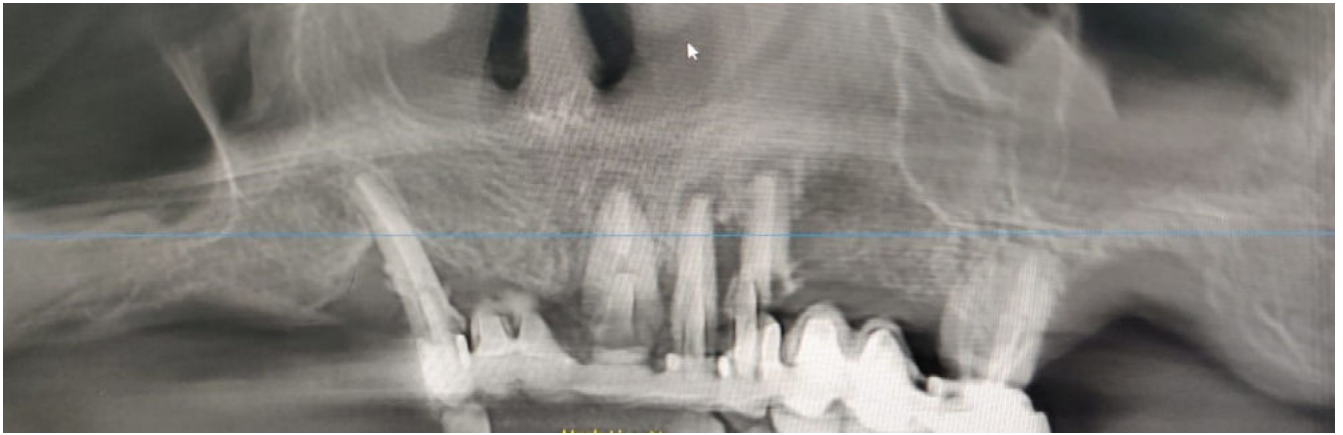
Noris Medical EZgoma® technology, based on computer software, provide us an appropriate prosthetic platform position that enhance the restorative result.

## CLINICAL CASE

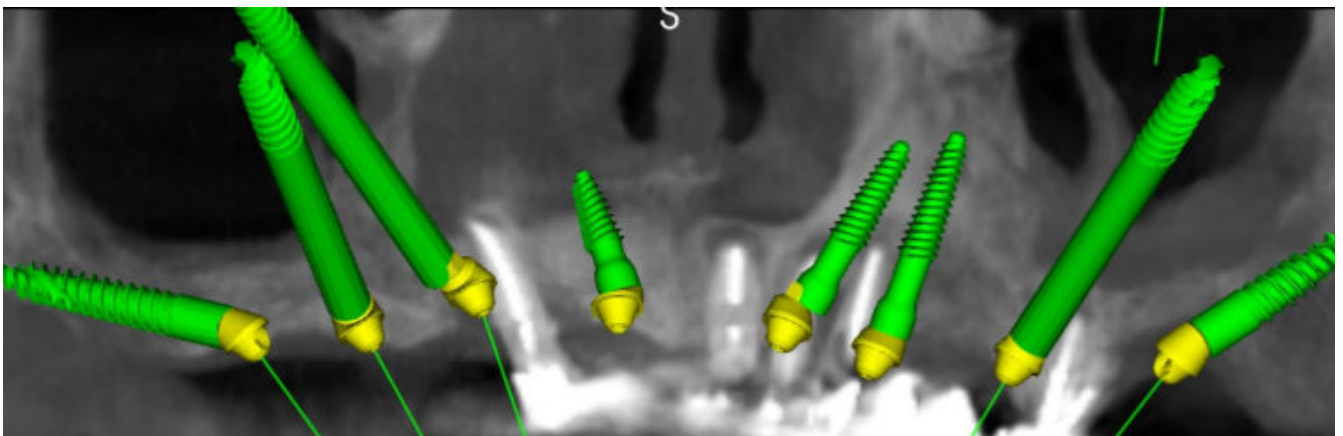
70 years old female with controlled high blood pressure.

Presents partial edentulous maxilla, with severe bone resorption, and tooth mobility due to periodontal disease and infections.

After radiological and CBCT assessments it was decided to extract all the remaining teeth followed with immediate implantation and immediate restoration. The surgical plan is to install bilateral Pterygoid implant, 3 Zygomatic implants (two in the right side and one in the left side) and 3 regular implants.



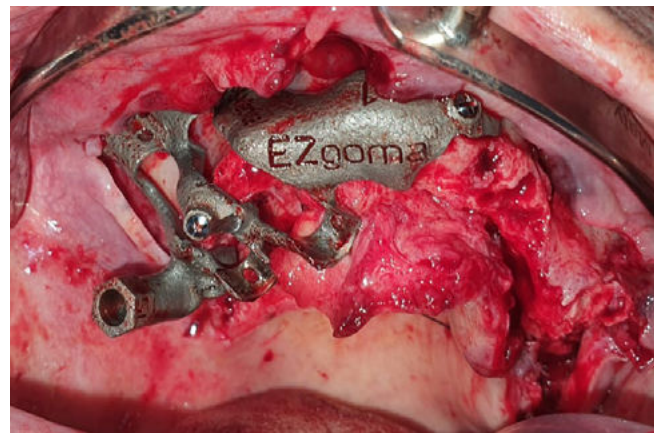
Pre-Op panoramic x-ray



Zygomatic, Pterygoid and regular implants planned positions



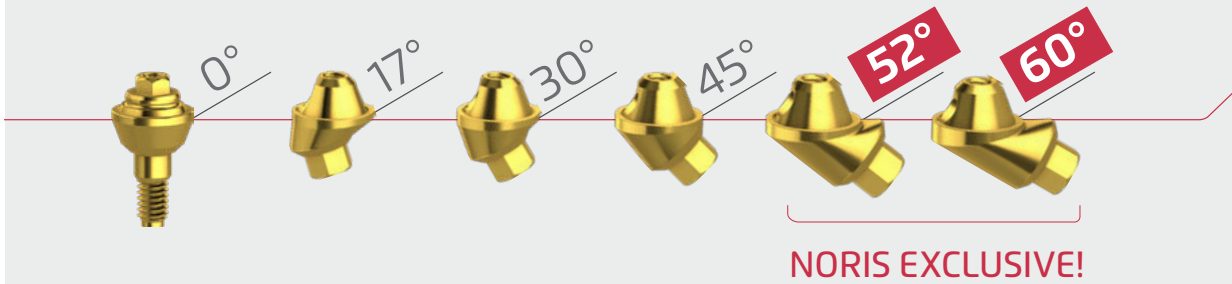
After teeth extraction and curettage, ready for raising the flap



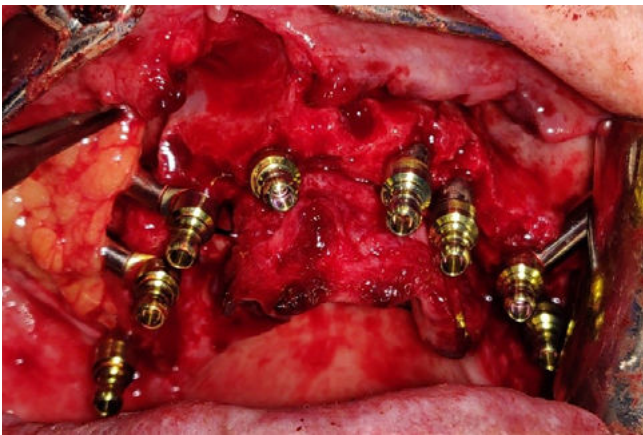
Placing the EZgoma® bone-anchored surgical guide



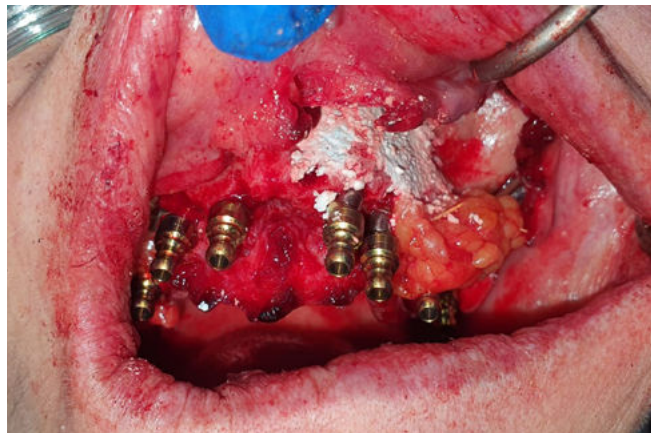
THE ONLY MULTI-UNIT WITH  
**SIX ANGLES OPTION**



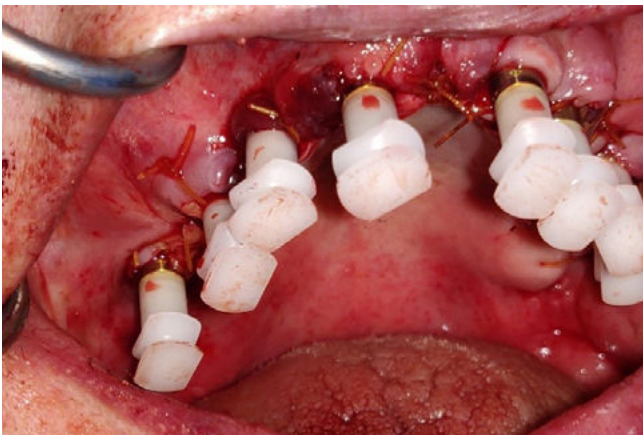
Noris Medical angled Multi-Unit abutments (45°, 52° and 60°) provide the angle correction needed.



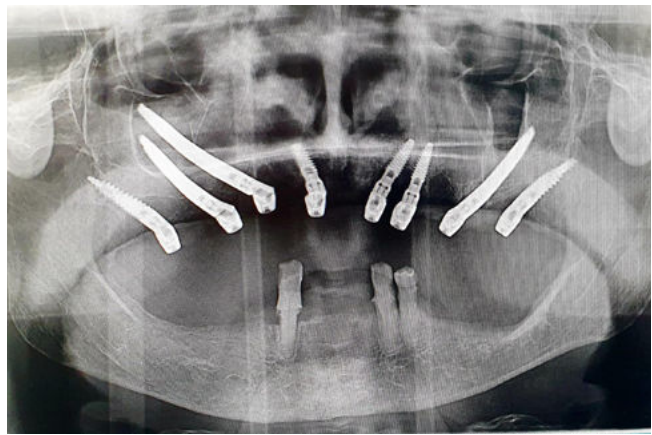
Implants were positioned, as planned, Transfers were placed on the Multi-Units



Bone graft augmentation and buccal fat pad advancement was done.



Suturing and taking impressions using Noris Medical Snap-On Transfers.



Immediate post-operative Panoramic X-Ray

*The EZgoma® technology enables quick accurate and predictable Zygomatic / Pterygoid implant positioning locations thus providing solutions for the most extreme cases.*

# CLINICAL CASE N°3

## *Immediate Loading with Zygomatic and Pterygoid Implants using EZgoma®*

Surgery: **Dr. Francesco Gallo & Dr. Francesco Zingari**

Surgery and Digital Planning: **Noris Medical Digital Department**

*Guided traditional implant surgery associated with zygomatic implants*

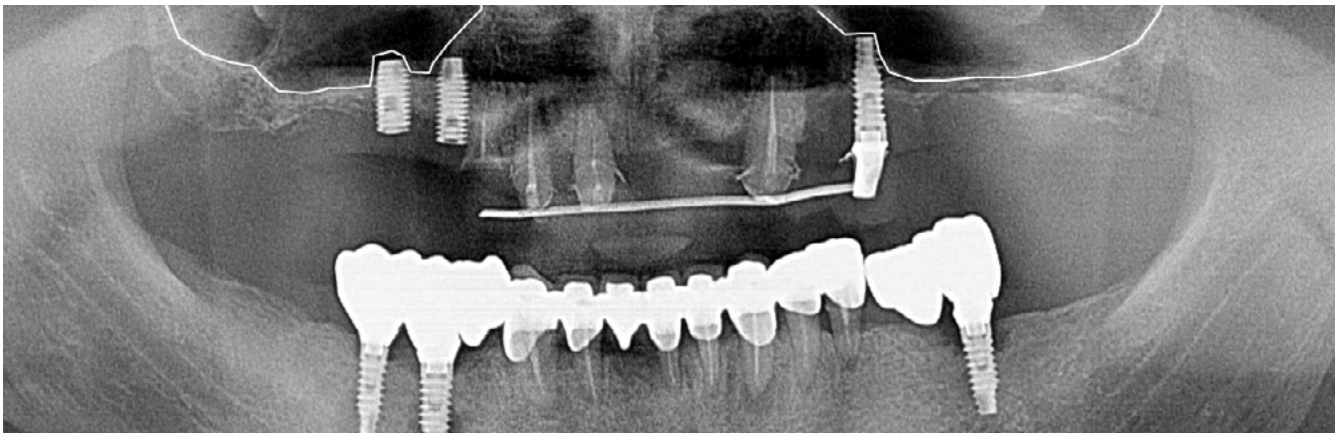
### CLINICAL CASE

Patient: 59 y.o., non-smoker, not suffering from any remarkable systemic disease

The patient referred to us with an upper temporary bridge anchored on 3 roots, the maxillary right lateral central and left canine and on one dental implant at the left first premolar.

Furthermore, the patient had two other implants at teeth right maxillary premolars with fractured prosthetic connections that were no longer exploitable.

Dental roots exhibited a degree 3 mobility and the implant at maxillary first premolar showed a 4/5 mm horizontal bone resorption with previous abscesses.

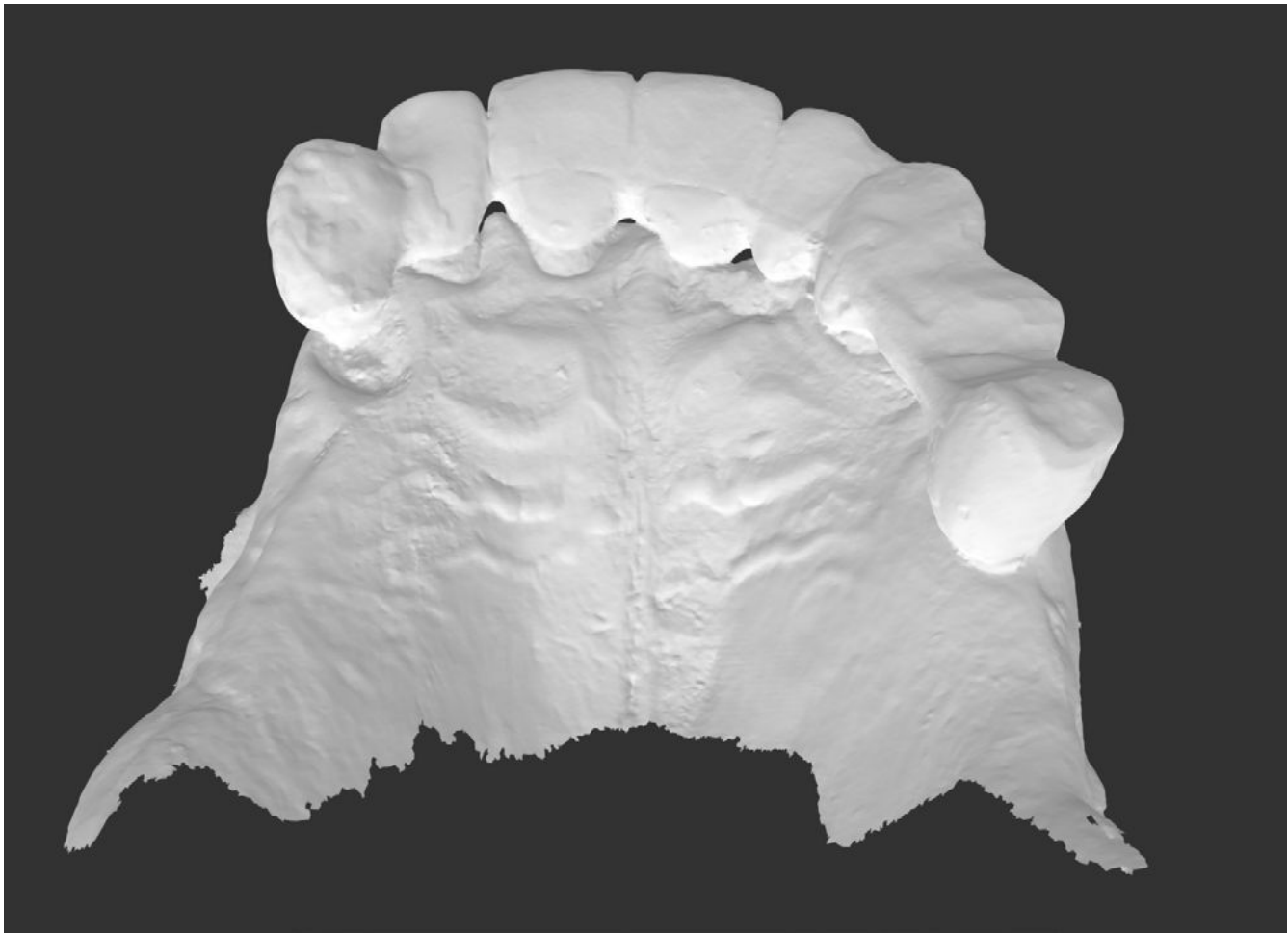


Severe bone atrophy in the posterior areas was identified

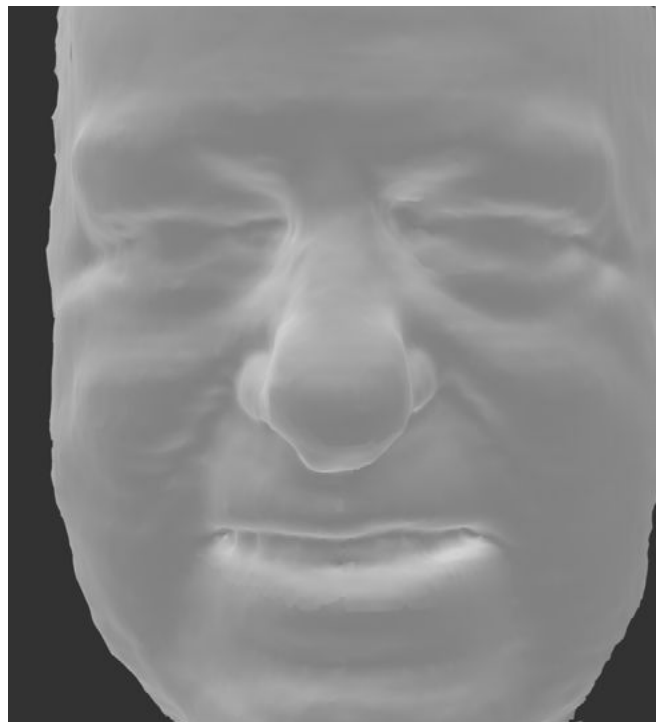
### TREATMENT PLAN

The treatment plan provided for the patient to undergo guided surgery with traditional implants in the anterior areas and 2 free-hand zygomatic implants in the posterior areas, with a total amount of 12 unit immediately-loaded prosthesis.

## DATA COLLECTION

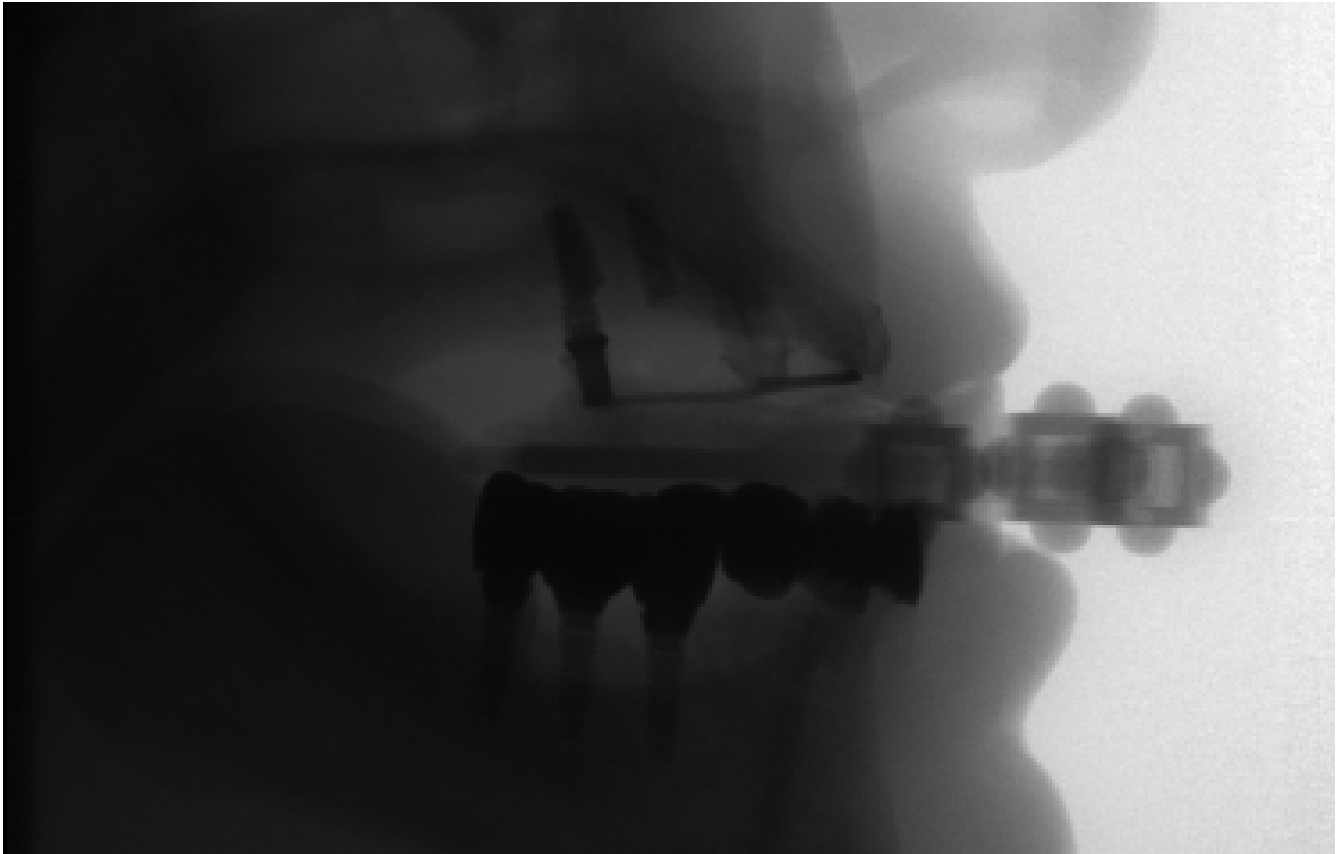


The first step of the treatment plan is the impression-taking of the surgical area, of its antagonist and of the bite block with an intraoral scanner.



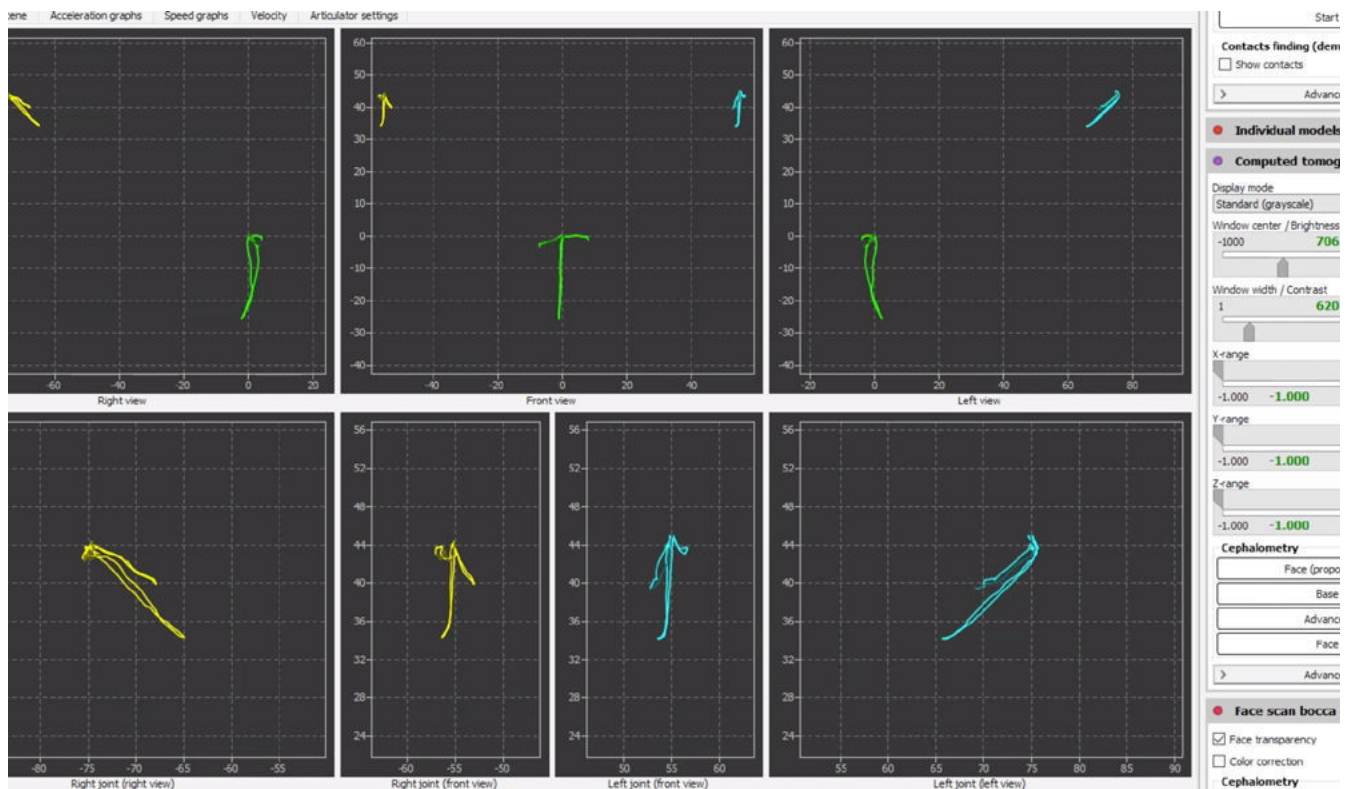
Then, facial scans are taken. These latter scans may prove useful as STL files and as a pre-operative iconographic documentation.



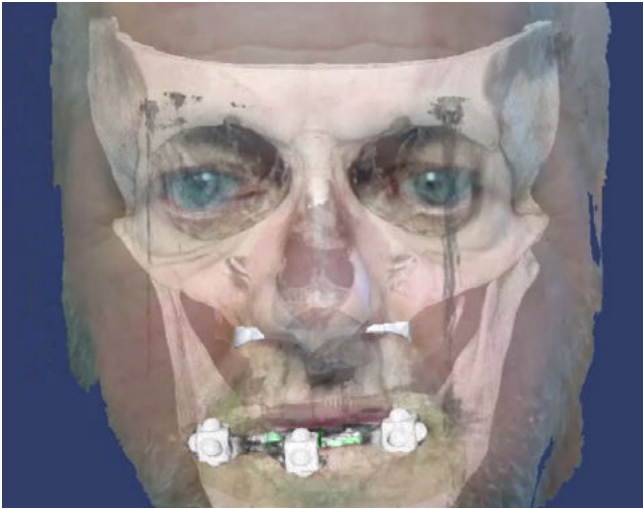


In the next stage the patient goes for a CBCT examination with stent in place. This extraoral geometry is necessary to realign DICOM files of CBCT with STL files of facial and intraoral scans.

Afterwards, condylar movements are recorded using prosystem software.



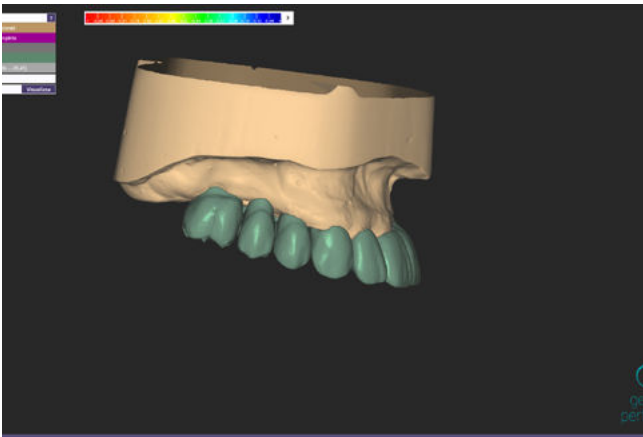
This recording collects right and left side condylar movements as well as opening and closing condylar movements that are detected separately and within a full masticatory pattern. Data are subsequently exported into a format readable for the Exocad modelling software.



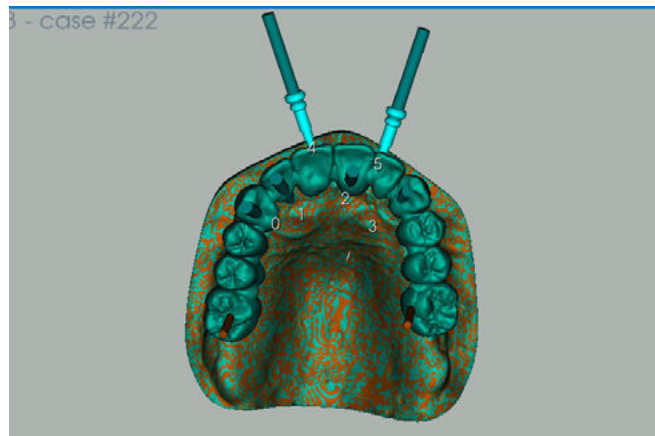
Intraoral scan files, facial scan files, CBCT files and axiography files are matched inside the software for fabricating a patient-calibrated individual diagnostic wax-up.



The patient-calibrated individual diagnostic wax-up matched with CBCT files enables to determine the most suitable implant position by analysing the quality and quantity of bone in relation to the future teeth position.



This approach is defined as prosthetically-guided surgery, that makes it possible to have a temporary restoration fitting the patient's masticatory pattern ahead of surgery.

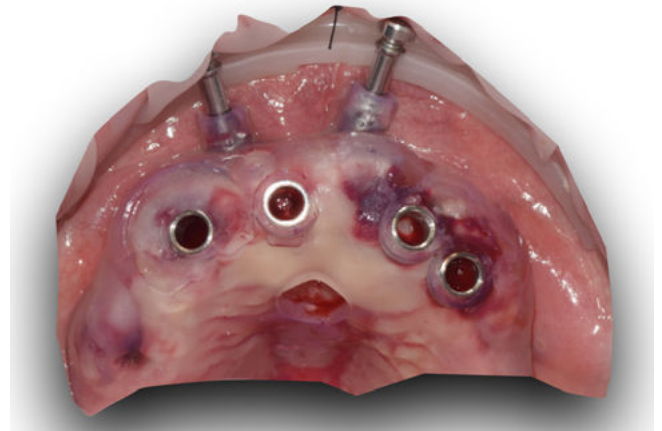


The implants of traditional length in the premaxilla area are virtually placed using the software and then a 3D-printed surgical guide is manufactured to guide drills and implants into the selected site. As for the zygomatic implants that will be placed free-handed, they are digitally studied as well with prosthetic emergence underneath the first molar teeth.

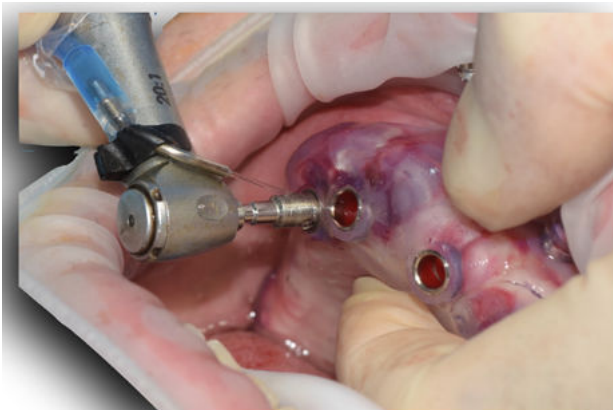


## SURGICAL INTERVENTION

After an infiltration using articaine with adrenaline at 1:100.000, the dental maxillary remain-ing root, the implants with broken collar at the right maxilla and the implant with peri-implantitis at the left maxilla are removed. Accurate socket cleaning is then performed.



The surgical guide is positioned into the mouth through silicone surgical index and fixed to the upper jaw using positioning pins.



The first drill is a mucotome resecting the portion of mucosa in the area where the following drill sequence will make the new socket.



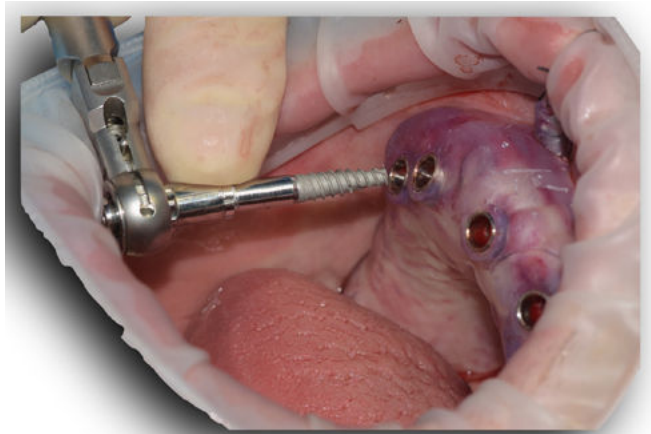
Then the predetermined drilling length is reached after several drilling steps advancing millimeter by millimeter. The newly created socket is bored by the drills to define its diameter.

*The drill sequence shall be strictly followed to achieve a predictable outcome.*

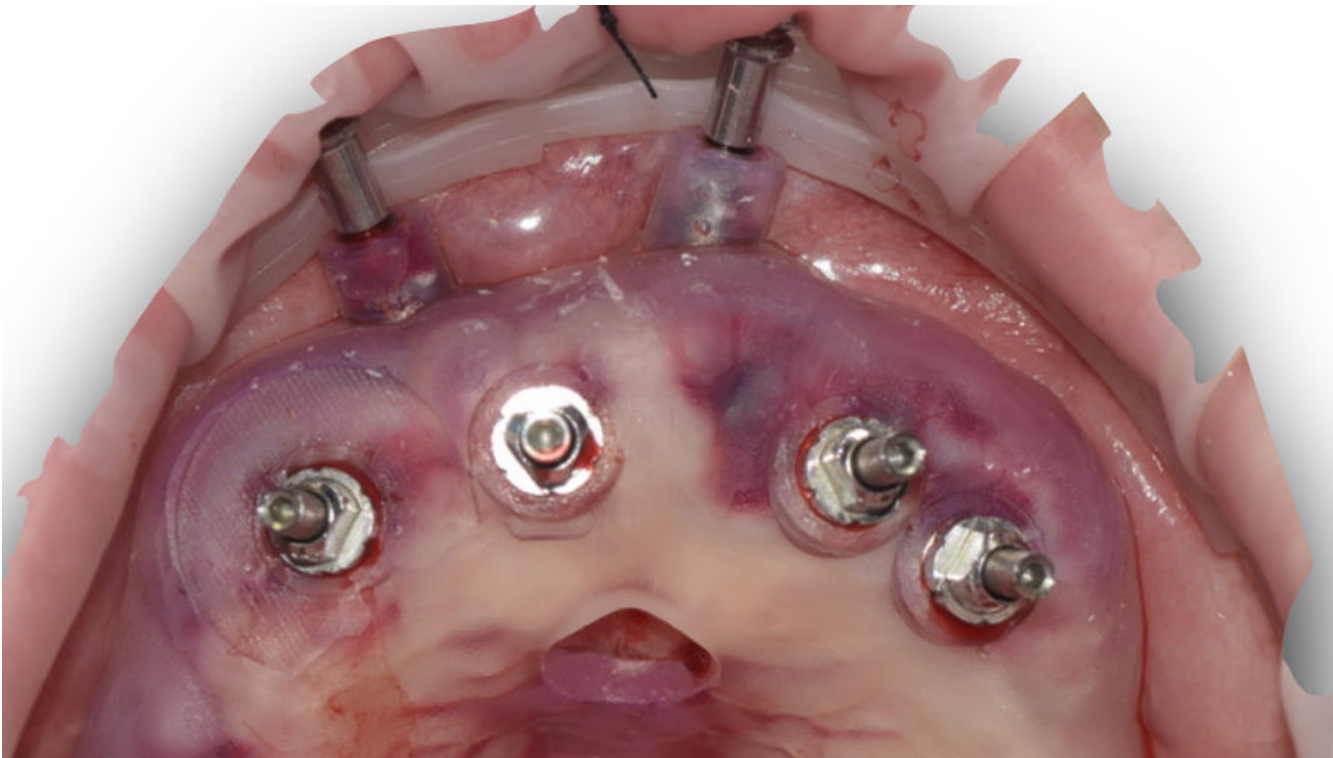
*Guided surgery as such requires that every single passage is guided by the sleeves where in-dexed drills have an unequivocal 3D position and a stopper for the cutting part. Furthermore, the implant shall be inserted through the same sleeves without removing the guide.*



Implants are picked from the blister-pack using the carrier that is screwed to the implant and works as a guide inside the sleeve.



Once the implant is placed in the new socket, it is held in place by the carrier, thus stabilizing the surgical guide.

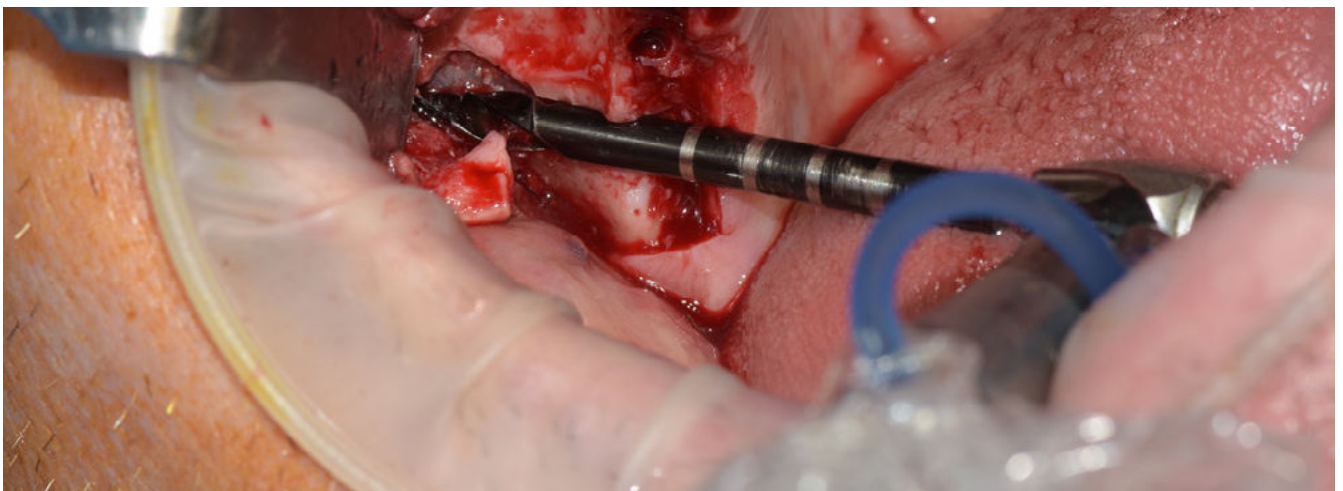


After placing all the implants by means of the related carriers and achieving the minimum required torque for immediate loading, the guide is removed.

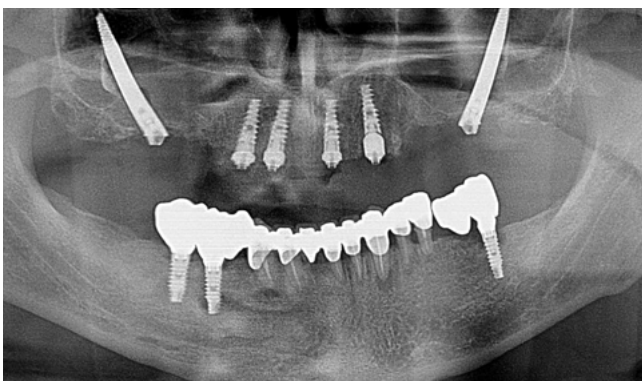




For the insertion of zygomatic implants, a mini-invasive access with a 5 mm palatal to the ridge crest incision and some vestibular releasing incisions in the areas of right premolar to second molar and left maxillary premolars are made. Afterwards, the skeletonization of the upper jaw and the exposition of the lateral wall of the maxillary sinus, of the infraorbital nerve and of the body of the zygoma (until detecting the anterior margin of the tendon of the masseter muscle) are performed. By detecting the position of the first molar on each side of the maxillary crest, it is coherently determined the ideal path of the two zygomatic implants. Along the ideal path of the implant, an osteotomy of the lateral wall of the maxillary sinus is performed using a diamond ball burr that enables a reduced detachment of the Schneider membrane. A further osteotomy of the lateral wall is made using a tapered diamond burr.



This latter defines the natural seat of the drill for the final osteotomy.



After defining the new implant socket, the zygomatic implant is placed in compliance with the prosthetic plan. Following a thorough haemostatic control, the mucosa flaps are sutured.



All the inserted implants achieved an insertion torque allowing for immediate loading. The temporary restoration is bonded using metal-to-metal cement.

We Can Make You  
**Smile**



**NORIS Medical®**  
Dental Implant Solutions



[norismedical.com](https://norismedical.com)