

# Guided Surgery Workflow

E-Paper





**I3DC** is an Authorized Software Trainer and service provider of **BlueSkyPlan™** as well as distribution partner of dental implants products in India with a team of CAD/CAM professionals working since many years in digital dentistry, providing constantly full assistance to international dental clinicians in **Computer Guided Implantology**.

This company is engaged in offering services in **Digital Implant Planning** to producing **Computer – Assisted – Surgical Guide** with the help of experienced professionals and helping dentist to enhance their knowledge in medical software for **Computer guided Implantology**.

Blue Sky Bio, LLC Is Designated As An Approved PACE Program Provider By The Academy Of General Dentistry !!!

# WE HAVE DELIVERED

- 40,000+ CBCT/CT Segmentation done till date**
- 10000+ Treatment Planning**
- 10000+ Surgical Guide**
- 1000+ Training Provided**



# Computer Guided Implantology

*A Digital Platform for Implant Surgery*

## RESOURCES TO GO >>



**Cbct**

**Intra-oral Scanner**

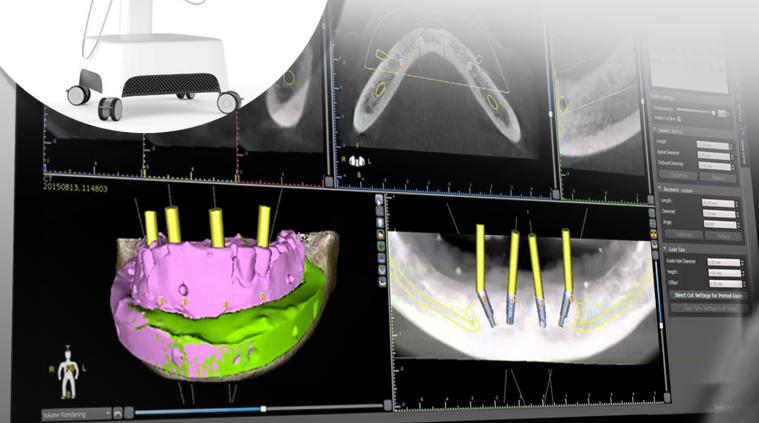
**Optical Scanner (Extra-oral Scanner)**

**Guided Surgery Software**

**3D Printer**

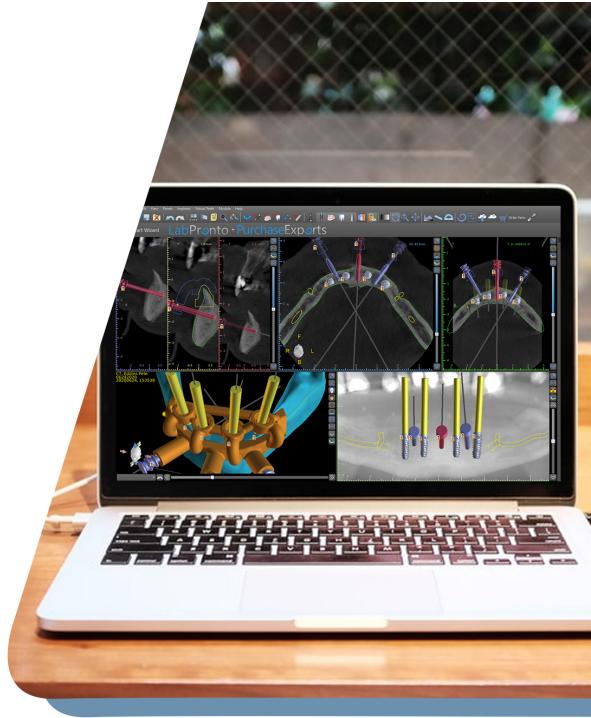
**Metal Components**

**You are Ready to go**



WHAT IS

# COMPUTER GUIDED IMPLANT SURGERY



Using CT/CBCT scanner as well as with the help of additional guided software, a clinician can virtually plan the treatment for the placement of implant according to the patient anatomical structure and case plan.

The type and size of the planned implant ,its position within the bone and its relationship to the plan restoration and adjacent teeth or implants are pre-determined before performing the surgery on a patient.

Surgical drill guide is fabricated after this process which is used by clinicians to place the planned implants in the same positioned as the treatment was planned virtually , allowing for more accurate and predictable implant placement.



## **Increased Accuracy And Safety**

Image guided dental implant surgery offers a higher level of precision in implant placement than is possible in traditional implant surgeries.

## **Faster, More Comfortable Procedures**

With the use of Computer guided surgical techniques, Clinicians are able to place dental implants in less invasive procedures than are used in traditional implant surgeries.

## **Quicker, Easier Recoveries**

The more precise, less invasive dental implant placement procedures made possible by image guided surgery mean less pain, swelling, bruising and discomfort after surgery for patients, and smaller incisions mean faster healing.

# PROCESS FLOW

## RESTORATION DRIVEN IMPLANTOLOGY

**1**  
**2**  
**3**

**Design the prosthesis**

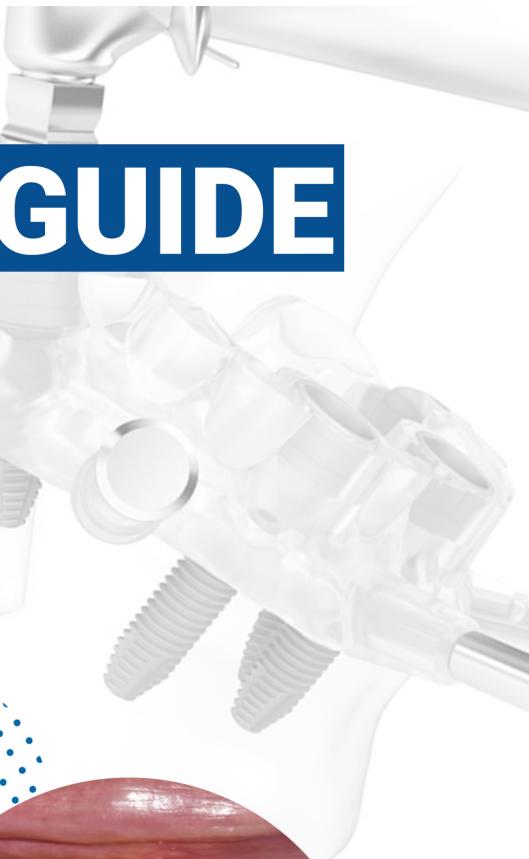
**Determine the No. of implants & size**

**Determine their position**



# Reverse Engineering

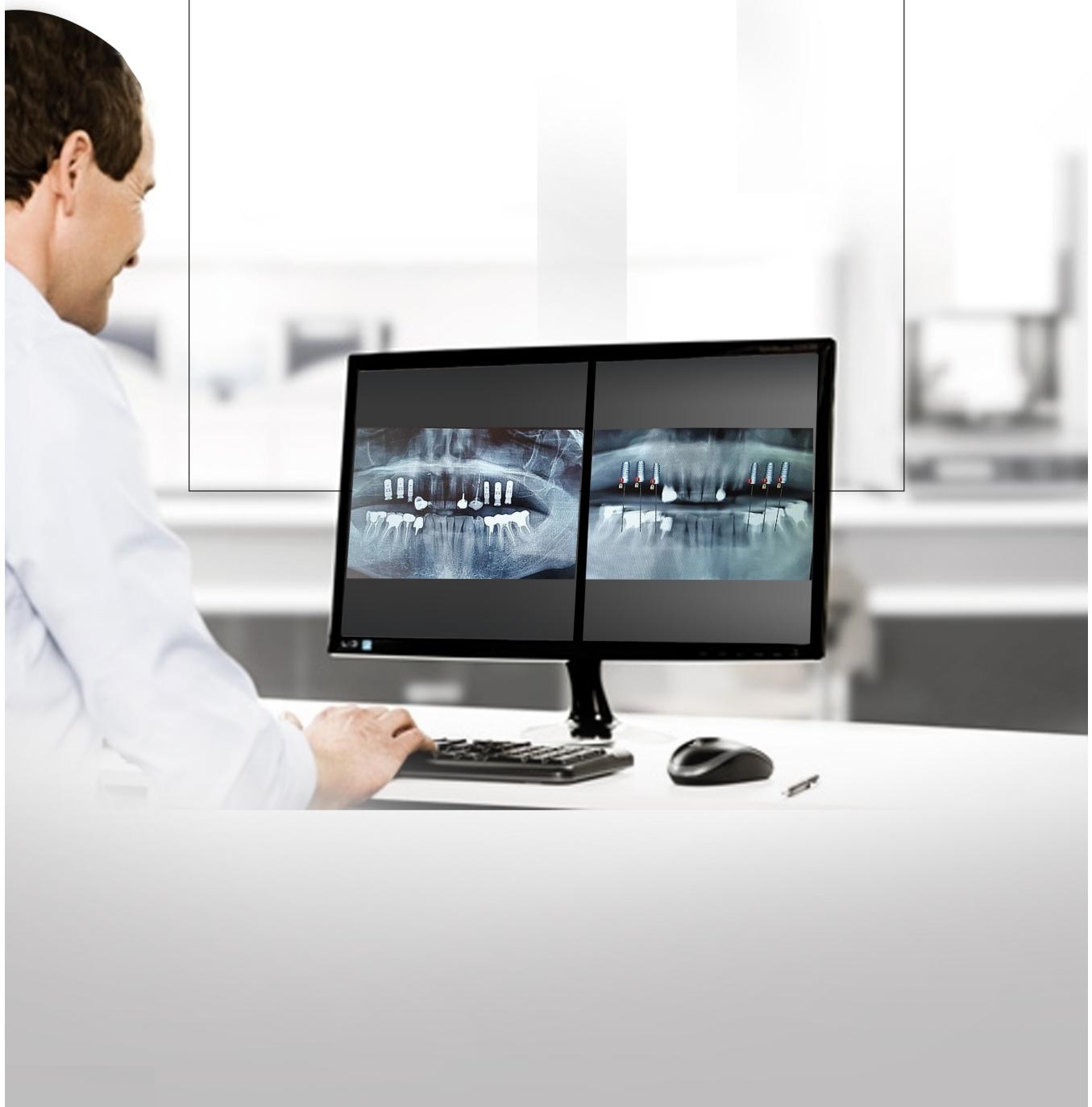
# SURGICAL GUIDE





# RESULTS

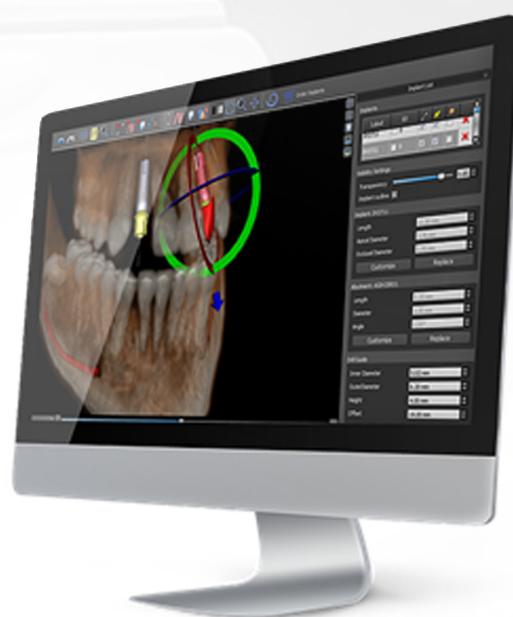
## OF PRE AND POST CBCT





# PRIMARY **TOOLS** FOR COMPUTER GUIDED SURGERY

CBCT Scan



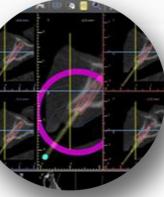
Guided Surgery Software

# WORKFLOW

CBCT (DICOM)



CBCT Impression



Treatment Plan

Bluesky plan



I3DC Guide™



Predicted outcome

# DENTULOUS CASE



CBCT of patient  
+  
Scan of Stone Model / Impression  
(CBCT scan or Intra-oral Scan or Extra  
Oral Scan)



# **FOR DENTULOUS / EDENTULOUS CASE HIGHLY DISTORTED CASE**

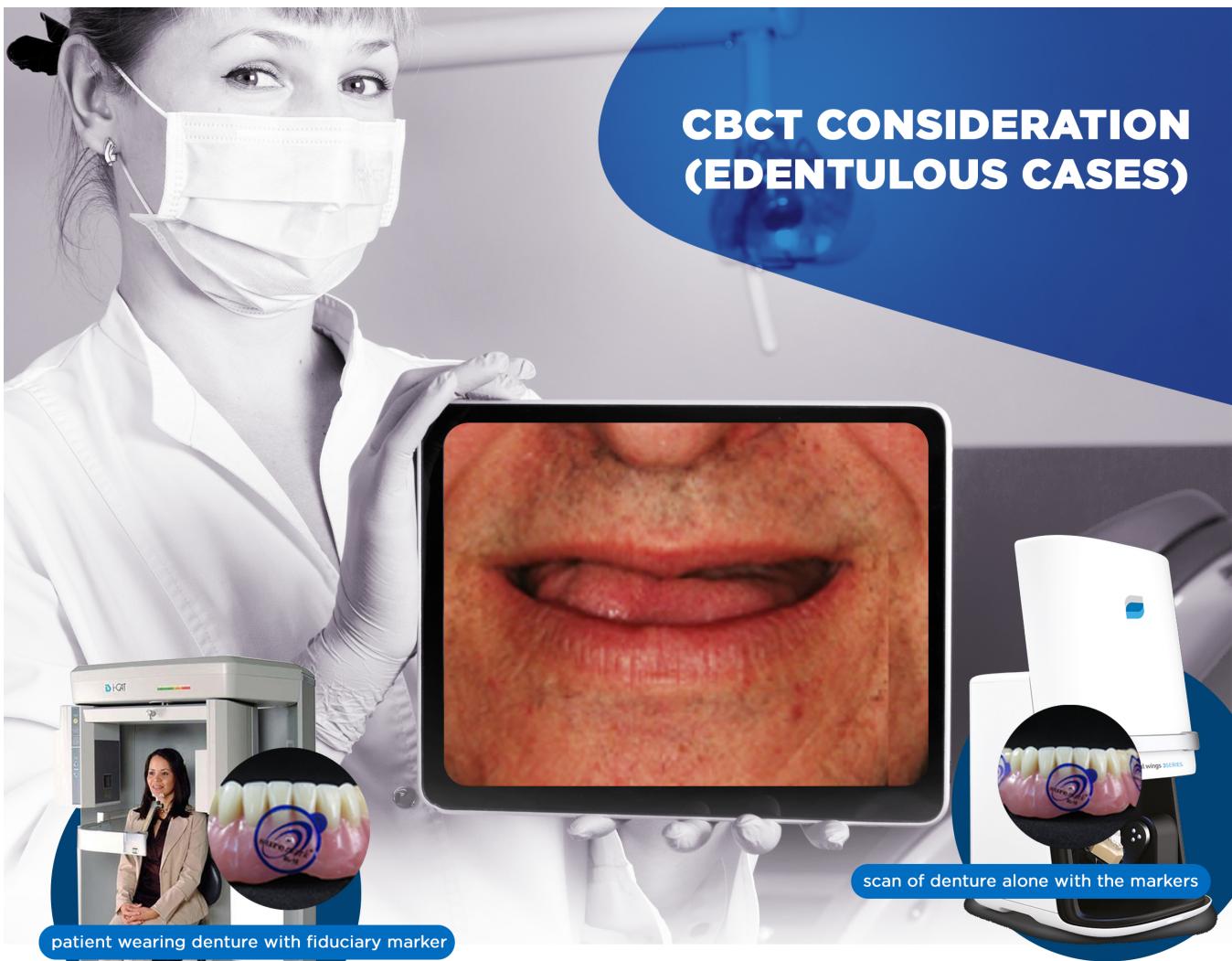
CBCT of patient with PVS Impression  
(with gutta-percha markers/radiographic markers/glass beads)  
+  
CBCT Scan of PVS Impression Only  
(with gutta-percha markers/radiographic markers/glass beads)



# CBCT SCAN OF PATIENT WITH **DENTURE**



## CBCT CONSIDERATION (EDENTULOUS CASES)



Create scan of patient wearing denture with fiduciary marker and the scan of denture alone with the markers

Export both the file in DICOM format (CBCT and Dual Scan )

Or Place radiographic marker on a plastic tray

Take an alginate impression in tray and scan the patient with the impression

Scan the impression only again and export the both file into DICOM format

Note : (DICOM) is a standard for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol.

# **EDENTULOUS SCAN**

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**(FLAP SURGERY)**

CBCT Scan of **Patient Only**



# **OPTICAL SCAN & WHEN IT IS REQUIRED**



## **Why do we need Optical scan :**

We need to scan the patient teeth optically to fabricate and make custom guide . CT Data is accurate for Virtual Implant Planning not for Guide Fabrication .

The optical scan of the teeth and model of the teeth is merged with the CT scan using BlueskyPlan software. The Implant is planned using CT data but the guide is planned and designed with Optical is much more accurate .

## **STL File :**

Optical scan comes in STL (stereo-lithography)format i.e most commonly used file for 3d printing .This format represent a 3dimensional model of object. We need to convert optical scan into stl format to import the file into software optically .

# **DIGITAL CONSIDERATION FOR PLANNING ERROR AND INACCURATE RESULTS**

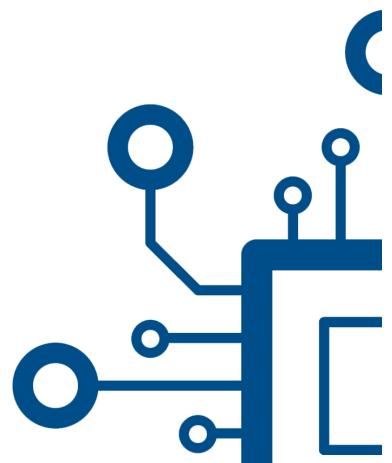
Metal restoration on patient mouth = Scatter

Patient Movement during scan =results double scan  
in CT scan

Cases are planned on highly restored cases

Inaccurate angulation during implant placement

Optical or Dual scan data are not stitched  
properly over CT scan





## SURGICAL GUIDE

Surgical guide is fabricated after treatment planning using computer guided software to angulate and control depth of your drill.



### Objective of surgical template

Direct the implant drilling system and provide an accurate placement of the implant

To precisely transfer the plan to the operative site

# Types of Surgical Guide



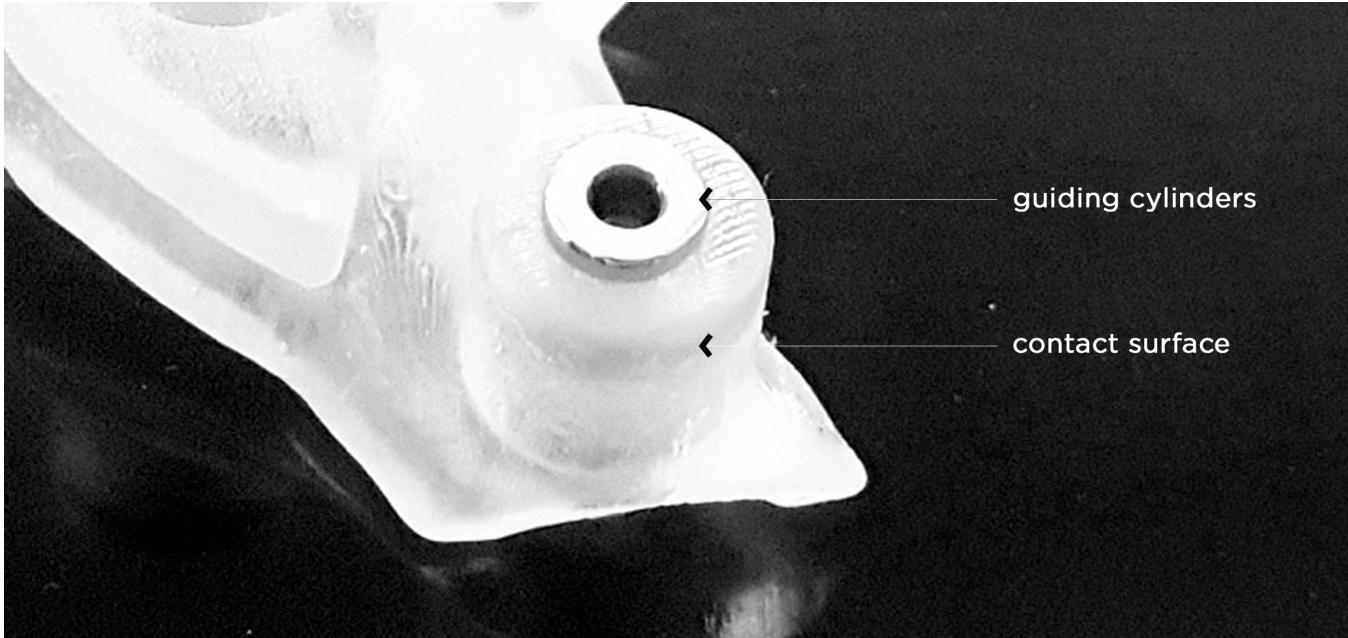
Tooth Supported



Tissue Supported



Bone Supported



## A **surgical guide**

is the union of two components:

The guiding cylinders

Cylinders within the drill guides helps in transferring the plan by guiding the drill in the exact location and orientation.

The contact surface

The contact surface fits either on an element of a patient's gums or on the patient's jaw (i.e., the bone, the teeth).

**Disclaimer :** Total drill length and outer diameter are must needed to proceed guided surgery and surgical guide

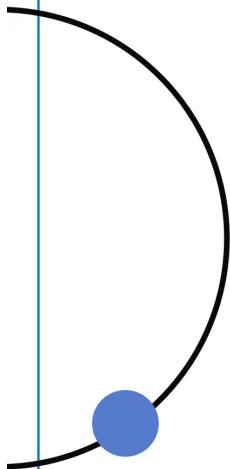
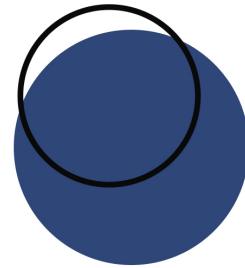
# REGULAR VS GUIDED DRILL

Regular Drill



Guided Drill





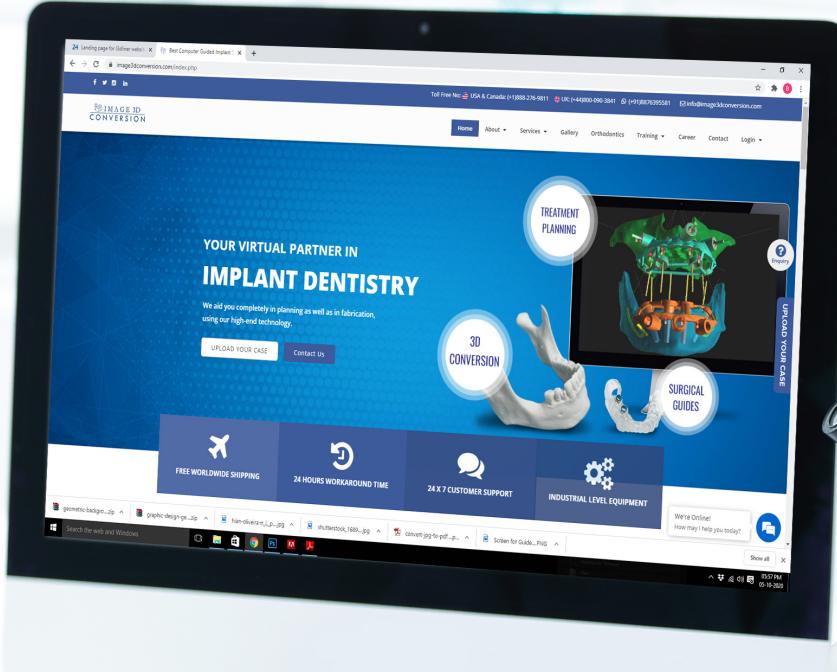
## SURGICAL GUIDE FOR UNIVERSAL DENTAL IMPLANT SYSTEM

FDA approved biocompatible material is used for surgical guide manufacturing

# Need assistance in *digital set-up ?*

Get your **READY TO PRINT STL** files for  
in-house fabrication

Place your order online now  
[www.image3dconversion.com](http://www.image3dconversion.com)



Lets start placing implants with I3DC  
surgical guides and get 100%  
predicted ossteotomy.