

FIGURE 8. Interpretation of CT data with computer software. (A) Multiple views may be seen at once on the screen. Virtual implants can be placed and modified while observing their best angulation in all planes. (B) 3-D views are also available to visualize the virtual implants in space.

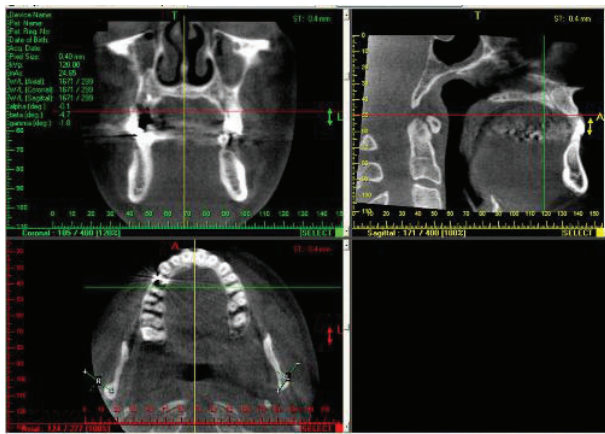


FIGURE 9. Initial view as seen seconds after scanning a patient using CBCT. Coronal, axial, and sagittal views are available. Image quality obtained after reconstruction is the same in all planes, which is in contrast to conventional scanners. Note that the upper left quadrant contains information regarding image acquisition such as voltage and angulations. Manipulation, measurements, and initial implant planning can be initiated immediately.

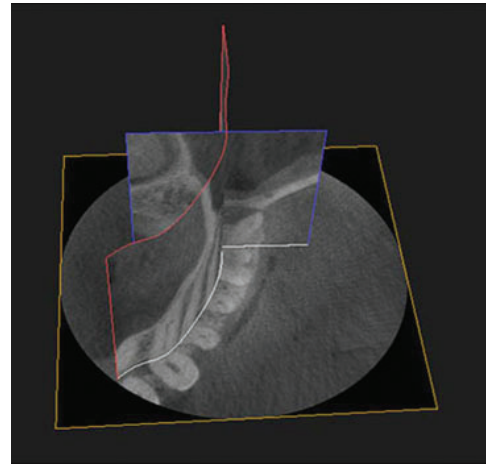


FIGURE 10. The panoramic view on computed tomography software differs to a traditional panoramic film. It is a flatter view of small layer following a panoramic tracing performed by the user (red line).

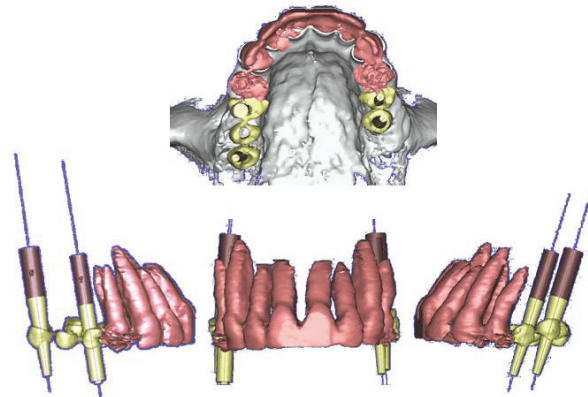


FIGURE 11. Use of CBCT with planning software allows for rapid access to high quality images. In this example, a scannographic template was used. Diagnostic teeth are produced by duplicating a wax-up. Because they contain barium sulfate, they can be colored by software. They show in yellow. Natural teeth (purple) are also colored separately from bone (white) due to differences in radio-opacity. Virtual implant planning is also shown, together with virtual abutments (yellow tubes). Virtual implants are positioned such that their long axis is entered on diagnostic teeth.

### Cone Beam Computed Tomography

- This is the new standard of care for treatment planning, implant placement, especially for multi-implant cases (Figure 11).
- Principles and nomenclature utilized in traditional computed tomography have been applied to Cone Beam Computed Tomography (CBCT). For example, orientation, window levels, and measurement techniques are similar.
- CBCT scanners use a cone-shaped radiographic source resembling that of dental office tubes, thus the name. Most CBCT scanners use a flat panel detector at the heart of this technology.
- Scanning time is reduced to a few seconds. While the rotation takes place, a great number of projections are rapidly captured. Later, a reconstruction algorithm renders cross sections.